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Letter from the Managing Editor

Josep Maria Altarriba

Managing Editor

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In the article at the start of this issue of *Harvard Deusto Business Research*, Professor Ángel Amado Calvo employs a multidisciplinary and transnational historical focus to investigate the impact of technology change on the structure of the telephone sector, the product of advances made in microelectronics and information technology. This issue has been studied in Spain, basically by specialists in regulation, on the one hand, and by technologists, on the other. A more cross-cutting analysis is necessary, and one that takes into consideration the different elements involved. Bridging this gap is precisely the aim of this article, based on unpublished primary sources, and on documentation of different origins.

Next, the work by Professors Yolanda Sierra-Murillo, Jorge Pelegrín-Borondo, Cristina Olarte-Pascual and Natalia Medrano Sáez aims to identify the reasons that lead consumers to shop in either physical stores in the urban center of the city or in shopping centers, as well as to provide new evidence as to the role that physical stores play in the omnichannel environment. The empirical study conducted in Logroño reveals that the utilitarian and hedonistic motivations intermingled with one another and differ according to age. This article provides the fundamental conclusion that stores in shopping centers and the urban center can coexist by each of them developing their own strong points.

In the third article, Professors Joan Francesc Fondevila Gascón, Joaquín Marqués-Pascual, Mònica Muñoz González and Marc Polo López analyze the influence of robotics on tourism. This is an innovative phenomenon, but one that will foreseeably be present in most tourism and communications activities. A quantitative and qualitative methodology is applied to analyze the phenomenon and observe the improvements and drawbacks that it may pose, as well as the repercussion on the tourism work environment. The authors conclude that the inclusion of robotics in tourism is still in the developmental stages, but it implies personnel cost savings and more personalized and interactive attention for the end user.

The aim of the article by Professors Carlos Raúl Arredondo and José A. Alfaro-Tanco is to identify the factors that influence the implementation of the SCM strategy in Latin American countries. More specifically, the authors focus on the study of the level of participation of the SCM strategy in the design of the business strategy through the analysis of the organizational culture, incentive programs for managers, internal alignment and segmentation. These aspects are evaluated in an analysis on the business level in an effort to understand how the internal organization helps foster the correct implementation of SCM.

The article by Professors Montserrat Gil Martín and Francis Blasco López delves deeper into the knowledge of moviegoers, in an attempt to define the motivational

factors that determine their choice of one movie over another. The analysis of these factors has made it possible to determine which have a greater or lesser effect on the consumer's decision-making process. Likewise, the methodology applied has permitted the authors to establish in a discriminating and predictive manner the different typologies of moviegoers in Spain, clearly revealing two groups, which they refer to as "actors" and "directors".

To close this issue, the article by Professor Maite Ibarretxe is intended to provide a better focus on how organizations and individuals can create shared value through strategic orchestration or collaborative innovation, to help generate a change in the system. Improved orchestration with a focus on shared value is intended to be a strategy that permits organizations to provide new value propositions to the market which cannot be delivered in an isolated manner, while at the same time satisfying a social need.

Finally, I do not wish to conclude the presentation of this new issue of *Harvard Deusto Business Research* without expressing our most sincere appreciation to the authors for their effort, to the editorial committee and the reviewers for their inestimable collaboration and professionalism and to the readers for their warm reception. Thank you very much to everyone.

Technological change, opening and internationalization of Spanish telecommunications. The transition to the third generation of mobile telephony

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Abstract

This article explores from a multidisciplinary and transnational historical approach the impact of technological change on the structure of the telephone sector, the fruit of advances in microelectronics and information technology. This problem has been studied in Spain basically by regulatory specialists, on the one hand, and technologists, on the other. We lack a more transversal analysis that puts into play the various elements that intervene. This article is intended to cover this gap, based on unpublished primary sources –primarily from Telefónica– as well as in other documents of diverse origin. Specifically, it focuses on the role played by Spain and the historic telephone company (Telefónica) in the transition to the third generation of mobile telephony (Universal Mobile Telecommunications System, UMTS) and gives prominence to the national state, to the supranational bodies –EU and International Telecommunication Union (ITU) and companies.

Keywords

Mobile telephony, Universal Mobile Telecommunications System, Telefónica, licenses, operator debt, internationalization.

How to cite this article

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Mobile telephony is based on different systems or standards, each with its own protocol or language; it consists of access networks, a central network, system elements and network architecture

1. Second generation mobile telephony around the world

Technological change in telephony and its repercussions on service, the product in essence of the advances made in microelectronics and computer technology, have received a great deal of attention in Spain, basically from specialists in regulatory issues, on the one hand, and technologists, on the other¹. In our opinion, what is lacking is a more cross-disciplinary analysis that puts the different intervening elements into play. This article is intended to cover this deficiency, from a multidisciplinary and transnational historical focus, based on unpublished primary sources – first and foremost, from Telefónica and an exceptional file from the Ministry of Industry – as well as other documentation from various origins². Specifically, it focuses on the role played by Spain and the country's historic telephone company (Telefónica) in the transition to the third generation (Universal Mobile Telecommunications System, UMTS) of mobile telephony, and the leading role of the national state, supranational organizations (the UE and the International Telecommunication Union, ITU) and companies.

It is commonly accepted that European leadership in the development and deployment of the second generation of mobile telephony, predominantly using a system called Global System for Mobile Communication (GSM), did not reoccur with the adoption of the subsequent systems. Indeed, the third generation in its Universal Mobile Telecommunications System (UMTS) variant had a slow beginning as compared to the fast adoption in the USA and Asia³. Moreover, if we consider the 2015 OpenSignal report, Europe did not lead the deployment of 4G, which was dominated by the Long Term Evolution (LTE) system, promising better, faster service and more extensive features⁴. There are discrepancies among the specialists when it comes to determining the causes for this situation.

Before continuing, we would like to explain a series of basic concepts that make it easier to follow the rationale. To begin with, the radio spectrum is a range of radio frequencies used publicly or privately to provide basic communications services – radio, radar and mobile telephone services. Its condition as a finite resource determines the institutional intervention in its assignment, along with its enormous and growing economic importance (National Audit Office, 2001, p. 1). Band width generally refers to the volume of information per unit of time that a means of transmission, for example, an Internet connection, can channel.

Mobile telephony is based on different systems or standards, each of which uses a certain protocol or language and consists of access networks, a central network, system elements

¹ As representative examples, see Elias, Berenguer and Mataix (2016) and Calzada and Estruch (2011), pp. 39-69, respectively.

² As professed by leading authors, the history of mobile telephony refers to both social and political developments and to the emergence of new technologies, standards and systems (Lacohée, Wakeford† & Pearson, 2003, pp. 203-211).

³ The ITU limits the official designation of IMT-Advanced to LTE-Advanced and WirelessMAN-Advanced, as the most advanced technologies for global wireless mobile broadband communications (4G), although it recognizes that this term may also apply to the precursors of these technologies: LTE, WiMax and other evolved 3G systems that provide a substantial level of improvement in terms of performance and capacities (ITU, 2010).

⁴ The USA adopted different 3G systems; in parallel the FCC supported the standardization of both Qualcomm's IS-54 and D-AMPS (IS-95), product of the collaboration between ATT and Motorola (Bornheim, 2001, p. 19; Glimstedt, 2017, p. 20). In the USA, new mobile telephony customers dramatically increased in number, drawn by the drop in prices. In 2002, in more than half the homes in the country, someone was signed up for wireless telephone services, a percentage that more than doubled the figure from seven years earlier (*New York Times*, November 18, 2002). Some authors reject the pessimistic vision of the role played by Europe, stating that the price levels and the data rates provided indicate the success of 3G, as well as 4G on the other hand, from the perspective of consumer wellbeing (Lemstra, Cave & Bourreau, 2017, p. 11). Regarding the problems surrounding the 3G standards, see Walke, Seidenberg and Althoff (2003); for 4G, see Medudula, Sagar and Gandhi (2016), pp. 81-85. At the end of 2015, the global 4G connection base exceeded one billion users in 151 countries around the world (GSMA, 2016, p. 2).

While the first-generation mobile telephony networks offered simple analog voice capabilities, second-generation GSM added some data services, such as email and fax

and a network architecture (ElNashar, El-saidny & Sherif, 2014)⁵. From the business perspective, mobile telephony is characterized by the high deployment costs of the infrastructures and by the relative lateness in achieving suitable profitability (Lescuyer, 2012, p. 7)⁶. Also noteworthy is its positive impact on economic growth, in such a way that a 10% increase in the mobile penetration rates increases the total productivity of the factors by 4.2% (Deloitte, GSMA & CISCO, 2012, p. 2).

In terms of the diversity of modes, mobile telephony, the third great wave in modern telecommunications, after the telegraph and conventional telephone, provided an unimaginable opportunity for expansion for an invention that was more than a century old, while also constituting a tool to change the world (Klemens, 2013)⁷. While first generation mobile telephony networks offered simple analog voice telephony, the second generation GSM added certain data services, such as email and fax (Jehiel & Moldovanu, 2001, p. 1).

The successor to the analog systems adopted on a continental or national scale (Goldsmith, 2005, p. 595)⁸, GSM traces its roots back to 1982, when the European Conference of Post and Telecommunications (CEPT, according to its initials in French) created a work group charged with developing standards for a pan-European digital mobile network. Fifteen signers from thirteen European countries (immediately followed by another five) agreed to renounce their various analog systems and launch the project that would become the Pan-European Digital Mobile Service (GSM), a multilateral convention establishing deadlines and identical conditions. The new European digital system was, in all reality, a network standard, and not just a product standard, and it therefore provided potential benefits derived from the related network externalities. It guaranteed efficient management of scarce resources, good vocal quality and advanced features for security and data. Based on WAP (Wireless Application Protocol), it permitted what was still precarious access to the Internet with low data transmission speeds and required rates to be based on connection time. The agreement had important implications for the industry in the participating countries, so the battle to defend the

⁵ UMTS consists of four logical blocks responsible for totally different things. The UMTS Subscriber Identity Module (USIM) is a chip card with specific information about the user and an authentication key for network access. The UMTS terminal or mobile multimedia equipment delivers the stack of protocols from the radio interface, as well as the operational elements of the user interface. The fixed network infrastructure or Radio Access Network (RAN) contains the installations required for radio transmission. As a long-range network, the Core Network (CN) transmits a user's data to its respective destination, thanks to numerous switching systems, gateways to other networks, such as the Integrated Services Digital Network (ISDN) or the Internet, and databases and installations for network management (Walke et al., 2003, p. 47). IGI Global defines a protocol as "a special set of rules that end points in a telecommunication connection use when they communicate."

⁶ In 1995, the telecommunications service market was estimated to be worth 143 billion ecus, of which 12% was generated in the area of mobile services. A very large increase was expected in the near future, which would increase this percentage to 25% of the total income for the year 2000 (Girard & Gruber, 1996, pp. 1-2).

⁷ Expressed colloquially, "mobile telephony has launched revolutions, saved lives, destroyed relationships and, of course, spawned a whole new genre of utterly pointless" (*The Guardian*, May 6, 1986).

⁸ The first manual mobile telephony systems were developed in the USA in 1946; the Swedish MT A was the first automatic commercial system (1956). 2G standards: Advanced Mobile Phone Service (AMPS) developed by Bell Laboratories in the 1970s, marketed in the United States in 1983 and later expanded; the Japanese MCS-L1 from NTT, based on AMPS, but at a higher frequency and including voice; the European Total Access Communication System (TACS), which operated at a higher frequency and with channels that had a narrower bandwidth than AMPS; with a more restricted geographical scope (roaming) was the pan-Nordic system Nordic Mobile Telephone (NMT), the first of its kind in the world, and developed in a cooperative effort among the Scandinavian countries, which made great efforts towards negotiation and finding consensus among the creators and those affected by the new technologies (Mercer, 2006, p. 113; Goldsmith, 2005, p. 595; Papadimitriou et al., 2003, p. 121; Craninckx & Steyaert, 1998, p. 3). NMT owed its success to "improved user comfort, miniaturized components and acceptable cost of the terminals" (Ketterling, 2004, p. 3).

Telefónica undertook to participate in all four phases set out for the introduction of the GSM system (review of specifications, acquisition, component development, system testing and implementation, and service expansion)

various interests became especially harsh (Conversation with Luis Lada, June 17, 2013; Natvig, 2004, p. 182; Selian, 2001)⁹.

The second generation GSM system reached noticeable levels of expansion and spread on a global scale. This success can only be explained by the cooperation, flexibility and adaptability on a national level, the latter being one of the key factors of differentiation between the diffusion of the second and third generation technologies (Eskelinen, Vatne, Maskell, Malmberg & Hannibalsson, 2002, p. 163)¹⁰. By mid-1997, the new system had deployed 200 networks in more than a hundred countries, with a total of 44 million subscribers. Only four years later, this standard was chosen by 70% of mobile telephony subscribers (Lescuyer, 2012, p. 1). Five years later, under the effects of the economic crisis, the overwhelming predominance of the GSM standard around the world was maintained, with 69% of subscribers, distantly followed by three other second generation systems: CDMA, with 13%; TDMA, with 10%; and PDC, with 3% (ITU, 2002)¹¹.

2. Second generation mobile telephony in Spain

Spain, a country whose mobile telephony history dates back to the early 1970s, joined the GSM agreement as a member outside the hard-core of France, Germany, United Kingdom and Italy, and the Nordic core formed by the Scandinavian countries, with no option in the latter case to optimize its potential advantages¹².

Officially backed by government delegation, the historic telephone operator Telefónica undertook participation in all four phases anticipated to introduce the GSM system. Altogether, they included the revision of specifications; acquisition activities; the development of the system components, testing and implementation; and finally, the expansion of the service¹³. According to the obligations entered into by the signing parties to focus on specific areas, it was undertaken to establish a commercial service in the Spanish capital and two experimental systems were acquired to test them in two other great events that took place in 1992: the Barcelona Olympics and the Seville World Expo¹⁴.

⁹ In 1982, the CEPT decided to reserve the frequency bands in the area of 900 MHz for mobile cellular systems (Lembke, 2002, p. 139). The GSM participants were formed by the four-party group (Germany, France, Italy and the United Kingdom), the Nordic group (Denmark, Finland, Norway and Sweden) and the rest of the CEPT group (Bliksrud, 2004, p. 198). The initials GSM, originally taken from the less-than-commercial name 'Groupe Spécial Mobile', created by the Telecommunication Commission under the framework of the Harmonization Committee, were maintained, but their meaning was changed to the Global System for Mobile Communication. It is worth remembering the official impetus: the French government made a firm commitment to GSM, in the hopes that a pan-European system would offer scale economies to industries and national service providers (U. S. International Trade Commission, 1993, p. 4/7).

¹⁰ It was the "right system, at the right place and the right time" (Selian, 2001), promising 'easy ubiquity' (Kelen, 2001, p. 188). The European Commission pointed out the affordable service provided to a wide market segment, the decrease in the cost of analog mobile telephony and the offer of a range of complementary services (European Commission, 1997, p. 103). The success of GSM owes to a double movement of initial interstate negotiation and the subsequent collaborative implementation following the agreement (Selian, 2001, pp. 5-6).

¹¹ Code Division Multiple Access (CDMA); Time Division Multiple Access (TDMA) and Personal Digital Cellular (PDC). As mechanisms to prevent interferences and collisions between users, CDMA is a scheme that permits different users to simultaneously share the available capacity of a common channel, while in the TDMA scheme, users transmit at different times, and thus the data bits are interspersed in the same means of communication (Muhammad, 2008, p. 1; Umar, 2004, p. 5/45).

¹² Practically all the specialists cite the mobile communications for ships (1970) and automobiles (TAV) (1976) (Elias et al., 2016, p. 85). Spain could not benefit from scale economies in the production of mobile terminals because NMT operated in Spain at frequencies that were slightly higher than those of the Nordic countries (Gruber, 2005, p. 91).

¹³ LACA, February 24, 1988.

¹⁴ After the start of the new millennium, Forum Barcelona 2004 incorporated the UMTS system into the project at the initiative of Telefónica Movistar, in spite of the lack of suitable telephone terminals.

In 1992, the five large European telephone operators agreed to develop a pilot broad band European network based on the ATM (Asynchronous Transfer Mode) system

The promotion of the information superhighway in Europe provided the operator with a new opportunity to position itself. Different international agreements made it possible to consolidate the basic elements of the new generation, particularly interoperability. In the aftermath of this frenetic year 1992 referred to above, full of international events, an agreement was reached with the four European operators (BT, FT, the Italian STET-ASST and the German Deutsche Bundespost Telekom, which a few years later would change its name to Deutsche Telekom A. G. and become privatized)¹⁵. Open to others, the agreement sought to develop the pilot European broadband network according to the ATM system (Asynchronous Transfer Mode). This culminated the efforts of the European Institute for Research and Strategic Studies in Telecommunications (EURESCOM) to ensure the interoperability of the networks and the dissemination of R&D in the European Union as basic elements for the creation of advanced European networks. Making the project possible required each operator to acquire and install ATM equipment on its respective networks, interconnecting them with 34 Mbit/s links (Turner, 1997, p. 51).¹⁶

From the Spanish market side, the Telefónica administration was very careful to stress that the ATM networks contributed the capacity for multiplexing, switching and transporting information in any telecommunications service, from high-speed data transmission to video communication¹⁷. By joining the European Multimedia Experiments in an ATM Environment (EMMA) project, a commitment also made by EURESCOM to promote international interoperability, Telefónica had access to the infrastructure of the European ATM pilot network for experimentation in multimedia services. The purpose concerned the development of technical solutions for potential services and applications that would be supported by the future commercial ATM network¹⁸.

Two years after the boom of 1992, two important events occurred. Telefónica joined as a founding partner in the ACE 2000 Forum, on the same level as BT, Deutsche Bundespost Telekom, FT and STET. The aim was to exchange ideas and promote pilot experiences to provide new services to users. The recently created entity expected to set aside 80 billion pesetas (500 million ECUs) in its first year for research and development in broadband technology. Another 16 billion were reserved for building the pilot European network based on ATM as the first step towards the information superhighway in Europe. Next, seventeen European operators inaugurated the pilot phase of this superhighway, aspiring to become the base for the future broadband RDSI, suitable for all types of telecommunications services, but still lagging behind the revolutionary Internet in terms of amplitude for its twenty million users at the time¹⁹.

¹⁵ The name change occurred in 1995 and the company was privatized the following year (Lemstra & Melody, 2014, p. 171).

¹⁶ Started in 1991 as an important investment by European operators in public networks, the pan-European ATM Pilot program was formalized by a memorandum of understanding (MOU) signed on November 12, 1992 by five European operators (BT, Deutsche Telekom, France Telecom, Telecom Italia and Telefónica), which were soon joined by another eleven (Belgacom, PTT Telecom Nederland, Swiss Telecom PTT, Telecom Finland, ATC Finland, the Swedish company Telia AB, the Norwegian Telenor AS, Portugal Telecom, Telecom Danmark, Telecom Eireann and Austrian PTT) (Rao, Uose & Luetchford, 1996, pp. 35-42); the MOU established the broadband telecommunications services based on ATM technology, focusing on the network interface and network management functions as a support for interoperable European services (Christensen-Dalsgaard, Donnelly & Griffith, 1999, p. 228).

¹⁷ LACA, November 25, 1992. Participation in ten EURESCOM projects, worth 24 million pesetas in 1991 (ACE, October 30, 1991).

¹⁸ ACE, June 29, 1994; Eurescom, P460SI EMMA - European Multimedia Experiments in an ATM Environment. The information superhighways were conceived as physical means or national infrastructures joined together to build a network of networks called the global information infrastructure (Linares & Ortiz, 1995).

¹⁹ ACE, June 15, 1994. It consisted of a pilot optical fiber network of more than 10,000 kilometers to provide computer-based voice, data and image services, without neglecting access to new interactive on-demand television, online education and telecommuting services. Spanish ATM network coverage was initially limited to the metropolitan areas of Madrid and Barcelona (*El País*, November 25, 1994). ATM was the transport technique to ensure effective voice, video and data support on the same network, with noticeable cost reductions and faster speed; it used small data packets with a fixed length of 53 bytes (Korhonen, 2003, p. 235; Lundmark & Oster, 1998, pp. 3-9).

The government awarded three GSM licenses to Telefónica, Amena and Airtel and two individual B2-type licenses to Telecommunications par Satellites Mobiles and Iridium Communications Germany to provide voice telephony services

Shortly after 1994, the ATM network in Spain covered the metropolitan areas of Madrid and Barcelona and provided transit services from Portugal to the rest of Europe, although its list of subscribers was still rather sparse. In essence, it was limited to the subsidiary Telefónica R&D and the Higher Technical School of Telecommunications Engineers at Madrid Polytechnic University²⁰.

Around these dates, in the draft of its telecommunications policy during the transitory phase to full competition, the Spanish government, in the hands of the Spanish Socialist Party (PSOE), advocated improving business competitiveness, ensuring universal access to basic telecommunications services and promoting the development of a national telecommunications sector. According to the final calendar for implementing GSM, during the second half of 1994 the technical regulations and rates were approved, and the date was set for the tender awarding the second license. In an effort to liberalize telecommunications, the government awarded three GSM licenses to three additional operators: Telefónica, Amena and Airtel. Two individual B2-type licenses were granted to Telecommunications par Satellites Mobiles, S.A.S. and Iridium Communications Germany, GmbH for the provision of voice telephony services available to the public through the establishing or operation of a public mobile telecommunications network that was either land- or satellite-based. Seven individual C2-type licenses were granted to seven operators: RONDA Grupo Consultor, S. L.; Hot Telecommunications, Ltd; Telespazio, S.p.a.; Eter Comunicaciones, S. L.; Tarifa Plana, S. L.; Globalcom Insa, S. A.; and Telefónica Servicios Audiovisuales, S. A.²¹ Telefónica was an indisputable contender for a license to provide services for the mere transformation of its current authorization or license, based on its government contract. After half a year of proceedings and the deposit of a 4-billion pesetas bank guarantee, in February 1995 it managed to transform its license and immediately afterward the GSM service concession contract was signed. Finally, Telefónica requested to transfer said administrative concession to its subsidiary Servicios Móviles, S. A. (Calvo, 2016, pp. 194-195).

As the late Enrique Usad indicated, Telefónica Móviles adopted a selective expansion policy with regard to mobile telephony in Spain. In other words, more than the economic or social elites, it targeted a potential clientele made up by groups of workers who performed their jobs on the street. The second pillar of the approach to expansion focused on reducing the costs for the mobile connection fees. This goal was not achieved, and this had detrimental effects on the service²². Instead of responding to the social need, the deployment of GSM ran into numerous administrative obstacles and resistance from users, who were wary of the effects that this multiplication of infrastructures would have on health and the environment (Navío, J., 2004: Interview with Cayetano Lluch. *Biz*, 147, October-November 2004, 24-29)²³. However,

²⁰ The European network based on ATM technology was inaugurated on October 24, with a video conference between Dublin and Brussels (*LACA*, November 30, 1994). By joining the Ten-34 project under the auspices of the EU, Telefónica committed to developing broadband telecommunications and the interconnection of national scientific networks, among them the Spanish Iris network (*ACE*, April 24, 1996).

²¹ Retevisión Móvil began offering its services on January 24, 1999 in ten cities under the commercial name Amena. With this, at the end of 1998, in Spain all telecommunications services were provided within a competitive system; the USA opted to use the 1900 MHz band (Elias et al., 2016, pp. 141-142). The holders of individual C2-type licenses could establish or operate their own network using the public domain portion of the radio spectrum, excluding the provision of voice telephone services to the public by means of a land- or satellite-based network (Muñoz, 2000).

²² Telefónica opted for UMTS without any guarantees regarding its availability in a specific period of time, but with the certainty that in a few years the mobile telephone would become a universal personal communicator and that renouncing UMTS would mean a collapse of the networks (Luis Lada in Zafra, 2000). Used indicated that in Italy, mobile telephones made of wood were sold that people used to simulate conversations, demonstrating the existence of an unmet need in society (*BOLSA*, March 2007, p. 53).

²³ 3G would require 30% more stations than GSM. As Javier Nadal confessed to the author of this work, Telefónica employed specialists to explain in detail to subscribers the lack of danger posed by the mobile telephony antennas.

**More than
to economic
or social elites,
mobile
telephony
in Spain
was oriented
towards a
potential
clientele
consisting
of groups
of workers
who performed
their work
in the street**

the GSM system maintained its hegemony in Spanish mobile telephony until 2008, an aspect that will be addressed later (Graph 1).

3. Implementation of the Universal Mobile Telecommunications System (UMTS)

The arrival of the third generation of mobile telephony (3G) was preceded by the development of a bridge standard under the name of 2.5G and based on the GPRS (General Packet Radio Service) system, which improved the Internet connection, increased the transmission speed and made it possible to establish its cost based on the volume of data transmitted, as opposed to the connection time²⁴. The growth in the demand placed on the mobile telephony system required the expansion of the band of frequencies used in Europe, with the addition of the 1800 MHz band to provide for the new DCS (Digital Cellular System)²⁵ mobile telephony service.

In the beginning, the third generation of mobile telephony, more than an immediate alternative to 2G, aspired to be a tool to optimize the existing operator networks and a complement to GSM, which offered new services (mainly multimedia) that had previously not existed (Papadimitriou, Pomportsis, Nicopolitidis & Obaidat, 2003, p. 121). 3G technology combined two innovations with long-ranging effects: wireless communications and the Internet.

We will now examine this topic in greater detail. In 1985, an international consortium under the auspices of the International Telecommunication Union (ITU) began work on the third generation systems under the acronym FSPTMT (Future Public Land Mobile Telephone System), a predecessor of the IMT-2000, and with the simple pretension of creating a pocket-sized mobile telephone capable of being used anywhere around the world (ITU, 1995, p. 1; Rappaport, Muhamed, Buehrer & Doradla, 2000, p. 8; Agar, 2013; Springer & Weigel, 2013, p. 91)²⁶.

Faced with the new generation of mobile telephony, the European Commission advocated harmonization and rationalization of the radio spectrum and a policy for the entire European Union, in accordance with the desire to promote a single telecommunications market and in pursuit of scale economies. Here lies one of the big differences between European mobile telephony and that of the United States, where the decision was left in the

²⁴ The 2.5G provided for new services, such as multimedia MMS messaging, a protocol for 3GPRS, with the capacity to send texts, images and audio (Telefónica R&D, 2003, p. 24). Most importantly, the 2.5G defined some of the 3G services and applications, and thus operators were reluctant to opt for 3G, whose main challenge laid in persuading 2G and 2.5G customers that the upgrade was worth it (OECD, 2004, p. 48).

²⁵ DCS-1800 MHz was known as GSM-1800, based on GSM technology, but operating in the 1800-MHz band frequency with greater capacity (Anttalainen, 2003, p. 204).

²⁶ FPLMTS were 3G systems conceived to unify the different systems that were then in existence in a radio infrastructure capable of offering a wide range of quality services (Callendar, 1994). According to the ITU, public mobile telephony systems are defined as land-based mobile systems for public correspondence based on radio stations connected to the public switched telephone network. In them, a series of general operating aspects applied: automatic configuration and charging of calls to and from the mobile station; for international systems, the capacity to establish calls between mobile stations and any landline or mobile subscriber, in the latter case, within the system; charging of the costs in a way that is compatible with the pricing principles of the public switched telephone network (PSTN); not requiring any significant changes in the landline telephony networks with the introduction of the system; maintaining the blocking probability within similar limits to those of the PSTN services in all stages of development and continuous quality control of the call, with automatic transfer between base stations as necessary. For a more precise definition, the U.S. landline mobile telephony system was designed to permit an automatic exchange of traffic with the public switched telephone network (PSTN) and offered a service to subscribers that was similar to that of landline calls: high voice quality, high degree of reliability, low blocking and a relatively low cost (ITU, 1978-1995, p. 1).

More than serving as an alternative to 2G mobile telephony, 3G aspired to be a tool to optimize the existing networks and a complement to GSM, which offered new (mainly multimedia) services

hands of the market, causing the country to lag behind, technologically speaking (Columbus, 2004, p. 2). However, it is sometimes forgotten that it was also protected against financial squandering.

The operating companies were after an explosion of consumption in response to the size of the investments made, the good growth perspectives in these main markets and the big opportunities for increasing the declining income per subscriber²⁷. But the El Dorado promised by UMTS would not come to fruition because the technology was not yet ready (users had the networks, but not the terminals), and the deployment of other technologies was potentially much cheaper, such as the aforementioned GPRS (General Packet Radio Services), Enhanced Data for Global Evolution (EDGE) and WLAN (Wireless Local Area Network)²⁸.

UMTS was presented with enormous market potential, consisting of 65-71 licenses valued by the Schroder Salomon Smith Barney commercial bank at €158 billion. To the amount required to obtain the UMTS concessions, it was necessary to add as much as €175 billion over ten years for the construction of networks, without forgetting the increasing amounts for investments in contents²⁹. The total income generated by UMTS was estimated to be 300% higher than that of the existing GSM networks (Little, 2001, p. 11).

Slightly before the end of the 20th century, the European Commission arranged with telecommunications operators and manufacturers to speed up the introduction of 3G without setting any common standards³⁰. Two opposing groups were formed. On the one hand were the Scandinavian countries and Spain, defenders of quick development, who established a very low price (and even absolute gratuitousness) for licenses. On the other hand were those bedazzled by the brilliant results of the license auction in the United Kingdom, in the midst of

²⁷ *L'Expansion*, September 14, 2000.

²⁸ *The Wall Street Journal*, June 18, 2000. After 2001, data flowed in packets following the adaptation of the existing network, which made it possible to connect to the Internet. Cingular Wireless, the first operator in the world to launch EDGE at 850 and 1900 MHz, chose it because of its performance or capacity and spectral efficiency (traffic capacity and service quality) that were competitive with any other technology option (Halonen, Romero & Melero, 2004, p. xxi and 173). While some analysts saw WLAN and 3G (both wireless technologies that improve different degrees of mobility and that allow users to use services) as complementary, other interpret WLAN as a potential threat to 3G. The delay in marketing 3G led to the strengthening of the 2G and 2.5G services. The lack of commercial availability of the 3G networks obligated Bouygues Télécom, for example, to resort to EDGE technology for multimedia mobile services in late 2003 (OECD, 2004, pp. 48-49).

²⁹ The Bank of France estimated the total cost of UMTS license acquisition in Europe to be \$136 billion (more than 980 billion francs), not counting the costs related to network construction; it called for caution and advised about the risk of default by operators. Bouygues Télécom, one of the three GSM operators in France and contender for the license, resorted to a €6 billion loan (nearly 40 billion francs), more than half of which was dedicated to its UMTS strategy (*Le Nouvel Observateur*, December 21, 2000). The spectrum reassignments for mobile services between 1994 and 2000 represented increases of 250% in investment and 300% in job positions (Telecommunication Industry Association, 2011, p. 1). The cost of UMTS in Europe reached €352.362 billion in 2002, more than half of the entire Spanish GDP forecasted for 2003. The initials UMTS have facetiously been said to stand for 'Unlimited Money To Spend' (*El País*, September 29, 2002).

³⁰ In all reality, there was a "financial, regulatory and political holy war for control of the wireless future" that shattered the project by the International Telecommunication Union, the responsibility for which was attributed in part to the intransigence of Ericsson and Qualcomm, who were staunch defenders of their respective WCDMA and CDMA systems. In pursuit of their goal to lead CDMA and the wireless Internet markets through strategic investments in newly founded companies, Qualcomm pressured the government and launched strong investments (\$500 million) in its venture capital division Qualcomm Ventures (*New York Times*, February 15, 1999 and November 15, 2000; *Cnet*, January 2, 2002). Different entities in the North American administration lashed out against establishing a single standard in Europe, in open contradiction to the WTO obligations and the ITU guidelines, considering it prejudicial for the U.S. industry. The European Commission assured its transatlantic ally that Europe would respect the competition and would be open to alternative systems (Mock, 2005, p. 206; Press Statement by James P. Rubin, Spokesman, December 22, 1998; European Commission, Press Release, Brussels, January 18, 1999; *EE Times*, 1/21/1999).

UMTS telephony was introduced with enormous market potential, and consisted of 65-71 licenses; it was estimated to generate 300% more revenue than the existing GSM networks

the financial telecommunications bubble³¹. The 3G spectrum auctions held back then in Europe collected between 150 and 600 dollars per capita (Fuentelsaz, Maicas & Polo, 2008, pp. 436-449; The Council of Economic Advisers, 2000, p. 1).

The first four UMTS mobile telephony licenses were granted free of charge in Finland in 1999 to three operators and the Finnish consortium Suomen Kolmegee. The country bureaucratically established the number and size of the licenses in terms of the available radio spectrum, commonly known to be a scarce resource, and the companies. Germany, Greece and Austria used the tender to determine the number and size of the licenses, as well as the license holders. The United Kingdom and the Netherlands chose an intermediate procedure, according to which the number and size of the licenses was determined using bureaucratic methods, but the licenses were assigned to the companies through an auction (Appendix 1) (Cartelier, 2003, pp. 63-85; Khosrowpour, 2004, p. 132; Börgers & Dustman, 2002, p. 1; Börgers & Dustmann, 2003, pp. 215-268)³².

Without detracting in the least from the chosen method, it would behoove us to keep in mind the procedure that was followed to implement each of the options. As an example, in Austria the regulatory agency carried out a public consultation on matters related to the introduction and awarding of UMTS licenses. In a second case, the interested parties took part in the configuration of the 3G license auction in Switzerland, using a dual track approach. They could express their opinions on different matters related to the concession through a public consultation and a discussion of the drafts of the bidding documents, the results of which were taken into account for the final version of the tender documents (*TRT*, June 15, 1999; OFCOM, 2000)³³.

In terms of the concessions, in the United Kingdom, the first auction for UMTS licenses amounted to 22.5 billion pounds (£37 billion), which greatly exceeded the predictions (National Audit Office, 2001, p. 1). The Radiocommunications Agency proposed one of the two auction designs based on the Anglo-Dutch concept of Klemperer. They are hybrids consisting of a first part with ascending offers ("English") and a second part with sealed top-down offers ("Dutch")³⁴.

³¹ Registered and approved as bidders in the tender were ten consortia, including those already installed, i.e. Com Mobile (subsidiary of Swisscom), Orange (France Télécom 85%) and diAx (via dSpeed); other applicants were Cablecom Management (NTL), Sunrise Communications, Hutchison 3G Europe Investments, Team 3G (One.Tel of Australia, Sonera 3G and Telefónica), Telenor Mobile, T-Mobile and Teldotcom. The latter later abandoned the project, as did Cablecom Management, T-Mobile, Telenor Mobile, Hutchison 3G Europe Investments and the two partners of Telefónica in the Team 3G consortium (Curwen, 2002, p. 85).

³² According to the last two references, the tender strategies approved by the companies were much more complex than the economic theory predictions. The early options favored profits, while the later ones showed preference to efficiency (Janssen, 2004, p. 25). The theoretical contributions unaffected by the weight of the industry specificities regarding the UMTS license results (Klemperer, 2001; Klemperer, 1999, pp. 227-286) have been strongly questioned by other theorists, among them Kruse (2004, pp. 185-212), who advocated also considering factors such as the time and country. Some authors doubt about the rationality of the investments in UMTS, which could respond more to emotional reasons than sensible ones (Lurin, 2010, p. 296); an improved scheme for granting licenses that demonstrates the advantages of the traditional mechanisms due to their transparency for all candidates, their adoption of both comparative and financial criteria and their extreme flexibility so that the regulatory authorities can reach their objectives, be it increased revenue for the government or faster network deployment, the introduction of high competitiveness incentives or the reduction of the possibility of collusion and credit risk assumed by the governments (Louta, Roussaki & Anagnostou, 2003, pp. 113-120).

³³ The 1999 public consultation in Switzerland showed that there was a sharp interest in the new licenses. Far from the countries of the economic center, Turkey created a National UMTS Coordination Board, on which were representatives of operators, companies and public organizations to participate in the granting of UMTS licenses (OCDE, 2002a, p. 150).

³⁴ In the first part, the price of a license increases until five bidders are left; in the second phase, these five remaining bidders only present a final offer, with a minimum equivalent to the last valid price from the first phase. The licenses are then granted to the four highest bidders. The difference in the two formats lies in the price that the successful bidders pay. In the Anglo-Dutch discriminatory type of auction, the four winners pay for their respective offers (Abbink, 2001, p. 1). The Dutch top-down auction was rooted in the system used to sell tulips.

The first four UMTS licenses were granted free of charge in Finland in 1999; this country bureaucratically established the number and size of the licenses in terms of the available radio spectrum and the companies

In the United Kingdom, the five licenses went to existing operators (Vodafone, Airtouch, BT Cellnet, New Orange and One2One) and to the Canadian operator TIW, supported by the Hong Kong Hutchison Whampoa group (Gruber, 2005, p. 260; *L'Expansion*, 636-642, February 1, 2001, p. 13; *L'Économiste*, May 6, 2000; *RedesTelecom*, October 22, 2007)³⁵.

Especially significant was the 3G auction in Germany, a country in which the increased demand for mobile telephony and Internet and the sharp decrease in prices in all telecommunications services promoted the real and potential growth of telecommunications. By mid-2000, the number of mobile telephony users reached the 34 million mark, and expected to climb to 48 million by year end³⁶. The 3G license auction in Germany produced \$46 billion, five times more than was expected by the government, while the per capita cost of the licenses remained €35 lower than the corresponding figures in the UK³⁷.

The European Commission had in its possession reports stressing the risks of implementing UMTS and their consequences for businesses. According to their conclusions, the first cause of the disaster lays in the unbridled expectations placed on the evolution of the market when the concessions began to be awarded, which pushed the prices higher. The second cause was found in the haste with which the operating companies acted, insisting on undertaking the sale of licenses without waiting for the arrival of suitable technology (McKinsey, 2002)³⁸.

Different analysts indicated that the crisis caused by UMTS would result in an unprecedented concentration of telecommunications on the European scene; only one peloton of five groups, led by the four 'giants' (Vodafone, France Telecom, Deutsche Telekom and BT), and in which Telefónica could enter, were among the winners³⁹. Indeed, the high bids shook up the industrial structure in Europe, fueling the large companies with growing importance in Europe.

The colossal size of the market we are referring to obligated operators to engage in co-opetition, i.e., to form strategic alliances to obtain significant shares. The concession process produced noticeable variation in the scale and geographic distribution. Thirteen operators held nearly three-fourths of the second- and third-generation licenses proposed up to 2002 in all of

³⁵ In an attempt to rationalize the behavior of the observed offer, highlight is put on the resistance of the data to provide specific evidence of certain rationalizations and the plausibility that without being confirmed or rejected directly by the data, rationalizes some of the offers made. The first five bidders to withdraw from the auction in the United Kingdom did so in quick succession; the withdrawals began in round 94 and ended in round 101, which closed phase 1 of the auction. The winners of the licenses and their offers were: A, TIW for £4.3847 billion; B, Vodafone for £5.964 billion; C, BT3G for £4.0301 billion; D, One2One for £4.0036 billion; and E, Orange for £4.095 billion (Börger & Dustman, 2002, pp. 6-7).

³⁶ With the deregulation of the telecommunications market in early 1998, the price of long-distance domestic calls fell by 89% and Internet use by 35%; Internet traffic doubled in 1999, a year in which the number of private customers increased by 70% (*The Wall Street Journal*, July 25, 2000).

³⁷ The figures vary according to the source; in one, the Spanish figure was €15/h., with €648 in the UK, €171 in Holland, €613 in Germany, €240 in Italy, €82 in Austria and €337 in France (Van Damme, 2000, pp. 4-8). The high price of the German and British auctions was due to the fact that they took place early in the European auction cycle, when the major players believed that they needed to win in both key countries or lose the opportunity to develop a pan-European network. The debt loads of the successful bidders shot up at the same rate as the auctions (Cowhey, Aronson & Richards, 2008, p. 20). Debitel, associated with Swisscom, withdrew from the auction as a bidder, seduced by a favorable offer from Mobilcom (France Télécom) (Heuvelhof, De Jong, Kars & Stout, 2009, p. 127).

³⁸ One of the worst scenarios possible came to pass: the income and profits from the new network were lower than expected and the company was confronted with problems with the debts they assumed to pay for the licensing rights (Ermoliev & Marti, 2012, p. 150).

³⁹ *L'Expansion*, 636-642, February 1, 2001, p. 13; the Forrester Research agency predicted a drop of 15% in income per user in 2005 and the disappearance of profits by 2007, which would take six years to recuperate (*InfoWorld*, January 22, 2001, p. 52); Arthur D. Little (Little, 2001, p. 37) indicated that the financial pressures from the UMTS license rights and the network deployment costs, also indicated by Halonen et al. (2004, p. 468), were cause to predict greater consolidation in Western Europe.

In the United Kingdom, the five planned licenses went to the existing operators (Vodafone, Airtouch, BT Cellnet, New Orange and One2One) and the Canadian company TIW, with the backing of the Hong Kong group Hutchison Whampoa

Europe (Whalley & Curwen, 2003, pp. 45-57)⁴⁰. The intense growth of mobile telephony resulted in their being more than 600 million subscribers at the start of 2001.

4. Spain: between the domestic market and globalization

Spain spoke up once the European guidelines were already established. The Order of November 10, 1999 approved the schedule of administrative clauses and technical specifications for the tender of four licenses that governed the establishing of the telecommunications network and the provision of third generation service⁴¹. The government, then in the hands of the right, intended to attain two fundamental objectives of a more global, but less specific nature than the previous ones: quick access to the information society and overcoming the comparative backwardness of the country in developing it⁴².

The government justified the selection of the tender method as a system for awarding the 3G mobile telephony licenses for several reasons⁴³. First of all, it understood it as the traditional system systematically used in the Spanish legal system to accredit those entitled to provide public and telecommunications services. The other reason owes to the priority objective of situating Spain at the top in terms of developing this technology in Europe in its facets of greater and better implementation as a means to foster the information society. Furthermore, the government wanted to ensure a volume, pace and quality of the investment made in telecommunications infrastructures, affordable prices for all citizens and fast development of UMTS services. Fourthly, the government wanted to better meet the communication needs of citizens through greater concurrence in a sector characterized by the vitality of demand and high rates of current and future growth, without neglecting the provision of many other additional services that had so far been inviable, primarily access to broadband Internet. The promotion of investment and the creation of new jobs that achieving this purpose would bring along with it would inevitably have the effect of invigorating the Spanish economy⁴⁴.

The acting PP government, while the Congress was shut down, awarded licenses to three existing operators (Telefónica, Airtel and Retevisión-Amena) and one to the Xfera consortium. That was far from the examples of Austria and Switzerland described above, characterized by transparency⁴⁵. In spite of the controversy generated, the Administration refused to nullify the

⁴⁰ Telefónica's international strategy differs from that of BT and Deutsche Telekom in terms of their entry level (Cairo, 2014, p. 154).

⁴¹ BOE, 270, November 11, 1999, pp. 39.340-39.348. Jazztel characterized the bidding documents as a "mess," drafted "in a hurry and on the fly" (*Mercadofinanciero*, February 16, 2000).

⁴² *Diario de sesiones del Congreso de los diputados (DdSCD)*, Plenary session and Permanent delegation, 25, 9/20/2000, p. 1.101.

⁴³ It is difficult to understand the Spanish government being included alongside the British and Italian governments as those capable of attracting great value through the concession of 3G licenses without any or very limited participation in their holders (Louta et al., 2003, pp. 113-120).

⁴⁴ The minister of the area in question summarized the government's objectives as greater freedom, greater competition, better services and lower prices; in short, more and better employment (*DdSCD*, Plenary session and Permanent delegation, 25, 9/20/2000, p. 1.125).

⁴⁵ From highest to lowest score, the successful bidders were Telefónica Servicios Móviles, S. A., Airtel Móvil, S. A., Retevisión Móvil, S. A. and Xfera Móviles, S. A. (BOE, 62, March 13, 2000, p. 10.327). The Xfera consortium was made up by Vivendi-FCC as the majority shareholder (27.5%), ACS (20%), Mercapital (17.6%), Sonera (15%), Acesa (7.9%), Orange (7%, belonging to Mannesman) and Ahorro Corporación (5%). The remaining consortia were Movi2 (Uni2, France Télécom and Iberdrola) and Movilwed 21 (Jazztel and Deutsche Telekom) (*ComputerWorld*, March 17, 2000). Movi 2 was a union formed by three companies from the sector (Lince Telecomunicaciones, S. A., Multitel Cable, S. A. and Suala Telecom, S. A.), three banking institutions (Caja de Ahorros and Monte de Piedad de Madrid and Cajas de Ahorros de Galicia y de Valencia, Castellón y Alicante) and a power company (Iberdrola Diversificación, S. A.). A public tender convened to grant four individual B2-type licenses to establish the required telecommunications network and for the provision of the third-generation mobile communications service, file 001-022561, Certification of the General Registry of the General Secretariat for Communications, which listed the candidates submitting tenders, January 12, 2000. Móvil Wed 21, S. A. alleged cross-holdings in the capital of several bidders by Caja Madrid (Public tender..., file 001-022561, Document from the tenderer Móvil Wed 21, February 7, 2000).

Different analysts indicated that UMTS telephony would lead to a concentration in which only five large groups would survive; indeed, the high bids in the auctions rocked the industrial structure in Europe

tender with the argument that it would mean violating the rules of law, create legal insecurity and reduce the international credibility of Spain. Uni2, a losing consortium formed with Jazztel, called for the precautionary suspension of the tender, as did Ferrovial. The courts rejected both claims⁴⁶.

The leftist parliament accused the Government of three key errors in the awarding of 3G mobile telephony: haste, a total lack of transparency and underselling of public resources with no guarantee of low prices for the service⁴⁷. Recapitulating, they meant to say subordination of democracy to efficacy, of transparent and democratic procedures to an obscurantist decision; turning efficacy into a great political error in perspective, because in the end, their proposal was not the most effective and meant heavy losses for the public treasury. To use a cycling metaphor: "You who intended to be the leaders of the peloton of the new economy are now taking the risk of isolating yourselves from the peloton and having to be picked up by the sweeper car." The socialist inquiry assessed the losses for the country in the billions. The government forgot (and for the Minister of Science and Technology, an economist, this was a lot to forget) that the indirect effects of the knowledge, important in high-tech industries, tend towards geographical localization and that Finland, the other early participant in the concession of licenses mentioned earlier, was much more advanced in the development of a mobile application industry (The Council of Economic Advisers, 2000, p. 2; *DdSCD*, Plenary session and Permanent delegation, 23, 9/13/2000, pp. 996-997 and 7, 5/17/2000, pp. 221-226)⁴⁸.

In Spain, 3G did not take off until 2003, in a race with obstacles that would delay the overtaking of GSM until 2008 (Graph 1)⁴⁹. Telefónica charged Ericsson, Nokia and Motorola with the first phase of construction of its UMTS network in sixteen large Spanish cities, with an estimated cost of 20 billion pesetas. It thus repeated its previous experience with technologies in the development of GSM⁵⁰. The first experimental UMTS test was not far

⁴⁶ Uni2, owned by France Télécom, initially challenged only the concession awarded to Xfera; Ferrovial protested all four awards (*Cinco días*, March 10, 2001). The Minister of Science and Technology held the position of General Manager and Board Member of Retevisión in October 1997.

⁴⁷ The socialists denounced irregularities in the concession and the violation of the terms and conditions as the result of the lack of information on the conditions and contracts that governed the tenders, and also for accepting aspiring operators who presented tenders for two licenses or in two consortia. They did not refrain from elaborating on several incidents. It would seem that the consulting firm contracted by the ministry had worked for one of the aspiring consortia in the tender and held a meeting with the table to establish the assessment criteria, according to the tender regulations; in addition, a senior civil servant charged with preparing the bidding documents was hired by one of the consortia members in the middle of the tender process. The Izquierda Unida Group qualified the tender process as a "bargain for companies and bad business for the citizens;" a representative of the Mixed Parliamentary Group for the BNG considered it a fiasco (*DdSCD*, Plenary session and Permanent delegation, 25, 9/20/2000, pp. 1.129 and 1.136; 10/26/2000, p. 2.364 and 2.369). Refuting that the low tender prices would translate into the service prices, the socialist representative placed great emphasis on rebutting the minister, an economist, with economic arguments on the service prices, indicating that they do not depend on the submerged costs, rather on competition (*DdSCD*, Plenary session and Permanent delegation, 25, 9/20/2000, p. 2.368 and 2.369). As voiced by the financial media, all the consortia in the UMTS tender had cross-shareholdings, in other words, there was the direct or indirect presence of companies such as BBVA, Caja Madrid, Mannesmann and Kutxa in several operators who submitted bids to the tender process (*Mercadofinanciero*, February 16 and 21, 2000).

⁴⁸ The socialist opposition qualified the awarding of the UMTS licenses as the "biggest gift of public money in our economic history" (*DdSCD*, Plenary session and Permanent delegation, 25, 9/20/2000, p. 1.127). Spain recorded the least impact on the budgetary balance of all the countries in the EU granting UMTS licenses in 2000: only one-tenth of a point more than the GDP (Sánchez, 2003, p. 22).

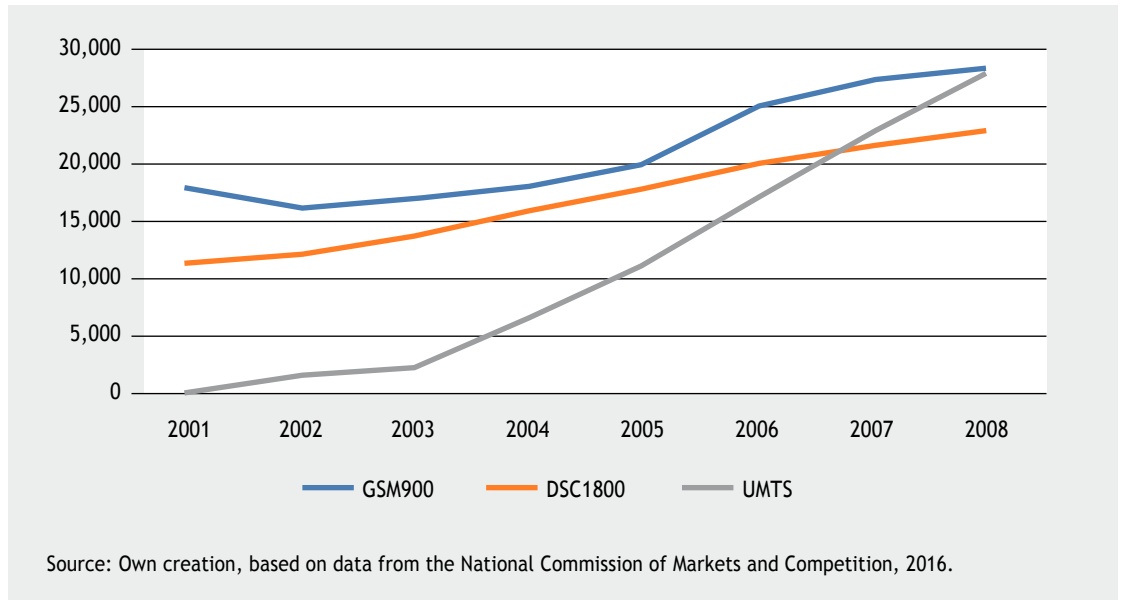
⁴⁹ According to the testimony of one of the protagonists, in 2004, investors, analysts and experts in marketing agreed in forecasting a brilliant future ahead for UMTS (Navío, J., 2004. Interview with Cayetano Lluch, *Bit*, 147, October-November 2004, pp. 24-29).

⁵⁰ The chosen cities were Madrid, Barcelona, Zaragoza, Málaga, Bilbao, Las Palmas, Murcia, Valladolid, Córdoba, Palma de Mallorca, Vigo, Alicante, Gijón and La Coruña (*El País*, November 29, 2000). The three manufacturers were required to supply the radio access network and the combined switching structure (packets and circuits), as well as 3G terminals and laboratory systems to conduct interoperability tests among the three providers (*RedesTelecom*, November 29, 2000).

In 1999, Spain approved the schedule of administrative clauses and technical specifications for the tender awarding four licenses to operate third-generation mobile telephone services

Graph 1

Mobile telephony in Spain. Base stations according to technology type



behind, and the R&D subsidiary developed user location services, an experimental platform within the UMTS framework to offer 3G services and experiences with local WLAN and Bluetooth wireless technologies and their integration with GPRS mobile technologies. In 2002, the effective deployment of the data services over GPRS took place and the testing phase was concluded for the UMTS network within the time periods promised to the government; in October 2003, Telefónica Móviles made the 'Oficin@ MoviStar UMTS' available to customers, the first pre-commercial third-generation service in Spain, including the 'Pack Degustación UMTS' (UMTS Sample Pack) card and the new telephone terminal, the LG U8150. Coinciding in part with these actions, Quam began to prepare the conditions for the development of its UMTS strategy (OECD, 2004, p. 34; Telefónica, S. A., 2001, pp. 40, 77 and 73; Telefónica, 2002, pp. 27 and 73; 2003, p. 43; *Movilonia*, October 20, 2003)⁵¹.

Accordingly, first Telefónica Móviles and then Vodafone, heir to Airtel in Spain, took the lead in 3G with an experimental version and using PCMCIA cards targeting major clients and not apt for mobile phones, rather laptop computers, which would later arrive in the market⁵². Both torchbearing operators took on different levels of obligations in Spain: Telefónica Móviles committed to €1 billion in infrastructure investments over three years and prior to November 2003, it installed 750 base stations that provided coverage to 40 Spanish cities with combined

⁵¹ The UMTS Sample Pack, available for a price of €299, was the first prepaid 3G data card in Spain (*PCWorld*, December 1, 2004); imitating two Asian countries (Japan and Taiwan) and four European countries (Germany, the Netherlands, Belgium and France), Telefónica introduced the i-mode in mid-2003, a mobile Internet service provided by the Japanese company NTT DoCoMo (OECD, 2004, p. 49; *NTT DoCoMo*, June 25, 2003). During the UMTS launch phase in Germany, Telefónica also chose Ericsson as a provider.

⁵² Telefónica Móviles planned to distribute 2,500 PCMCIA (Computer Memory Card International Association) UMTS cards among 500 of the operator's large clients; Vodafone used the SIMO TCI computer trade fair as a platform for its pre-commercial launch of its PCMCIA dual UMTS/GPRS URA (Vodafone Remote Access) card, also aimed at corporate environments, before making it available to residential users (*ComputerWorld*, November 7, 2003).

The acting PP-led government, while the Congress was shut down, awarded licenses to the three existing operators (Telefónica, Airtel and Retevisión-Amena) and to the Xfera consortium, in a process that was far from the transparency seen in Austria and Switzerland

technology (Nokia packet switching and radio and circuit switching deployed from Ericsson). In a larger amount, the investment announced by Vodafone was reported to be €2.8 billion and 1,000 stations that provided coverage to twenty cities with Nortel Networks technology⁵³.

We must, however, recognize that UMTS drove the operators into debt and limited their investment capacity⁵⁴. Different barriers arose against the expansion of UMTS. In spite of the relatively low numbers of subscribers, the mobile telephony operators granted the UMTS licenses in Spain committed to investments of €16.296 billion and €7 billion in guarantees. Correcting the gift they were accused of having given, the government established an annual rate or fee of €100 billion over twenty years as compensation for the low amounts collected in exchange for the licenses granted⁵⁵. It is true that it was willing to relax its initial requirements, but without this altering the agreed investment plan in any way (Senate-commission, October 1, 2002, 329, p. 5)⁵⁶.

The UMTS licensees, in turn, operated for a while in an environment of uncertainty, in fear that the government's (Ministry of the Economy) zeal to collect funds would lead it to grant new licenses, in spite of the presumed limitation on the available radio spectrum wielded by the Ministry of Science and Technology, thus restricting business expectations⁵⁷. The licensees appeared skeptical regarding the deadlines set by the Government for the commercial launch of the UMTS services in Spain⁵⁸.

Following the comings and goings (the so-called 'political and legislative yo-yo' of UMTS in Spain), the Ministry of Science and Technology eased the investment and employment obligations for ten of the obligations that the mobile operators were bound to when obtaining their licenses. The new conditions allowed them to save around €6 billion, 30% of the amount initially committed to for the deployment of networks and infrastructures. Added to this was nearly €4 billion earmarked for the development of applications and services for the new mobile. The ministry also lowered the universal coverage obligations, including the last 15% of those who lived in rural or remote areas. In the very sensitive area of employment, the license holders were exempted from the requirement to create 36,300 direct job positions and more or less the triple that number in indirect jobs. The pact between the ministry and operators did away with the obligation to set up R&D centers, capital venture funds for technology companies and other social projects that represented investments of more than €2 billion. Finally, they eliminated any reference to the prices of the new services⁵⁹. Altogether, the new

⁵³ *El País*, October 30, 2003. During the first quarter of 2001, Airtel deployed UMTS radio base stations in four large cities (Madrid, Barcelona, Valencia and Seville) with Lucent Technologies technology and had plans to extend 3G commercial services over the summer of that same year to 23 cities in which a fourth of the population of Spain was concentrated (*Wireless Internet Telecommunications Newsletter*, March 2001, p. 3; *European telecom*, July 31, 2000, p. 13).

⁵⁴ *Computing*, June 20, 2001.

⁵⁵ *El País*, November 8, 2000. For Telefónica, the rate reduced by an annual amount of 25 billion its *cash flow*, i.e., financial resources (Luis Lada in Zafra, 2000).

⁵⁶ The government spoke of 'more acceptable conditions for the companies' and offered to drastically lower the guarantees; on their behalf, it associated the possibility of sharing networks to the commitment to offer UMTS services as soon as possible (*Cinco Días*, December 17 and November 20, 2002).

⁵⁷ *El País*, November 3, 2000; the media talked about a true chasm in the government between the proposals made by the Ministry of Science and Technology, which was in favor of limiting the licenses, and the departments belonging to the economic area, which were in favor of expanding them.

⁵⁸ Telefónica Móviles indicated that the August 1, 2001 deadline was five months earlier than that recommended by the European Union and its fulfillment was subject to the absence of any technical barriers, which were emerging in terms of the availability of the terminals and the lack of services they promised (fast Internet connection, videoconferencing and e-mail) (*La Vanguardia*, August 29, 2000).

⁵⁹ The bulk of the investment will be concentrated in the first five years: €2.3 billion in the first two fiscal years and 4.5 billion over the next three.

In Spain, 3G did not take off until 2003, and did not overtake GSM until 2008; Telefónica charged Ericsson, Nokia and Motorola with constructing the first phase of its UMTS network

conditions decimated the commitments associated with the concessions and thus compromised the objectives of universal mobile telephone coverage and the development of the information society that were so repeatedly proclaimed.

5. The role of Spain in the European implementation of third-generation mobile telephony

The third generation of mobile telephony had some supranational dimensions built into the UMTS standard. At this point, we will turn to globalization. As a historic telecommunications company, Telefónica focused its strategy along two priority lines, consisting of maintaining their leadership in the landline telecommunications market to ensure revenue generation and to guarantee its future as Spain's chosen communications provider (Linares, 2001). Stipulated by another strategist of the operator, it was a plan based on six central ideas that referred to geographic positioning, company structure, offer and financial performance. Specifically, it implied maintaining leadership in Spain, growing organically and territorially in Latin America, expanding in Europe by taking advantage of the concession of new licenses, functioning as a unified company, generating scale economies to reduce costs, developing the mobile Internet market with content applications and strengthening their financial situation (Luis Lada, in Zafra, 2000).

During the 1990s, the expansion by Telefónica throughout Europe was very limited, as it lacked any implementation in the area, except for small shares in Portugal and Austria. In the opinion of Plaza (2000), this was a great gap in Telefónica's strategy, which made it very vulnerable within the EU. The situation changed after 2000, with the acquisition of UMTS mobile telephony licenses in several European countries (Calvo, 2016, p. 41)⁶⁰. In Central Europe, Telefónica controlled an Austrian company providing telecommunications services to businesses, and through Terra Mobile (51% owned by Telefónica Móviles and 49% by Terra Networks), the Finnish company Iobox, the leading independent portal and content aggregator in Europe⁶¹. Towards the end of 2006, the tangible and intangible investments of the Telefónica Group totaled €5.067 billion, divided between Telefónica de España (906 and 143), Telefónica Latinoamérica (652 and 85), Telefónica Móviles (1,072 and 229), Grupo O2 (1,255 and 277), Grupo Český (108 and 34), Telefónica Contenidos (36 and 1), Atento (17 and 2) and Resto y eliminaciones (Remainder and eliminations) (239 and 11)⁶².

It has been said that Telefónica's access to Europe was quick and decisive, and the figures back this to a certain degree, since in only two years (between 2004 and 2006), the continent went from contributing slightly more than 4% of the company's income to 26%. A closer examination indicates some slow starts, because Telefónica had already been operating for years

⁶⁰ Some brief references to these episodes seem to reduce the initiatives in Europe to a mere parenthesis, which demonstrates the need to reconstruct this interdisciplinary story we referred to at the start. For Fernández and Mielgo (2008, p. 85), for example, the UMTS licenses won in Germany, Italy, Austria and Switzerland were projects that we ultimately scrapped due to the failure and non-fulfillment of expectations that said technology had generated.

⁶¹ Iobox originally pursued the provision of strongly localized services for each country. Iobox was financed in two successive rounds in the amount of €3.1 and 13 million (January and December 1999), in the first round by SFK Finance, Eqvitec Partners, Alto Berkeley Investments and Capman Capital Management, and in the second round by Morgan Stanley Dean Witter Capital Partners. In late 2000, Terra Mobile had a total of 3,052,802 registered subscribers and operated in the markets of Finland, Switzerland, Germany, the United Kingdom and Spain (Telefónica, S. A., *Informe Anual*, 2000, p. 32; Shi, 2004, p. 120; Koskinen & Rouhola, 2000, pp. 1-2). Iobox represented the addition of €233.45 million in the consolidation after late 2000, out of a total of €5.21363 billion (Telefónica, S. A., *Informe Anual*, 2000, p. 102).

⁶² Telefónica, S. A., *Documento de Registro de Obligaciones y Derivados*, Appendix IV of Regulation (EC) No. 809/2004 from the Commission on April 29, 2004, p. 24.

**Thereafter,
Telefónica
Móviles and
Vodafone,
Spanish heir to
Airtel, took the
lead in 3G with
an experimental
version using
PCMCIA cards
aimed at large
clients**

in different segments of the European market. What occurred was an important step forward, but not one free of prior failures.

Faced with a loss of market share to the competition in its traditionally privileged space, Telefónica saw UMTS third-generation mobile telephony as the 'window to Europe.' Knowing that this market would position it among the top world operators, it decided to take its chances abroad in the new market segment.

As indicated above, one of the company's strategic objectives at the start of the millennium was to obtain licenses to operate mobile services in Europe, using UMTS technology. The UMTS-based strategy, conveyed by Telefónica Intercontinental as the instrumental company, was pan-European in nature, giving priority to the markets in large countries (United Kingdom, Germany, France and Italy) and one of the most advanced, namely Switzerland. Telefónica linked its technical success in 3G telephony not only to obtaining the licenses and its operation in 2002, but also to strategic actions during this year and the following one. Such actions included, first of all, the creation of a pan-European operator with two parallel structures – one on a European scale, with strategic partners, in which Telefónica would have a majority shareholding, and another on a local scale in each country. To this, the provision of wireless-Internet services was added by establishing new companies with partners in UMTS or by acquiring existing companies. Thirdly, the strategy involved the acquisition of alternative mobile operators in the main European countries prior to the launch of UMTS, as a customer base. The strategic actions continued with the creation of a single mobile brand associated with UMTS⁶³.

As materialization of the strategy, in 2000, which was especially intensive in terms of activity, Telefónica conceived a consortium with BBVA, La Caixa, Banco Zaragozano and Abengoa to obtain third-generation mobile telephony licenses in the main European countries, among them the United Kingdom, Germany, Italy and France⁶⁴. To finance these operations, Telefónica took out a syndicated loan from two Spanish banks and five foreign banks in the limited amount of €8 billion (1.33 trillion pesetas)⁶⁵. That same year, BBVA and Telefónica

⁶³ Telefónica, *Informe Anual*, 1999, p. 32. One of the directors points to the precocity in declaring itself a global player in a market with a restricted club of global players. "It is clear that in order to be a global player, it is necessary to have a strong presence in Europe: Interview with Alfredo Acebal, CEO of Quam, February and September 2002, in Picot and Doeblin (2013), p. 97. The analysts at McKinsey, the banking institution involved and famous law firm in London, reported that the average revenue per user (ARPU) could be between €60 and €80 (Conversation with Fernando Panizo, February 1, 2017). The oral history focuses the decisive stakes set by Europe on the link between privatizations and free competition, which opened the way for the mobile business (Conversation with Luis López-van Dam about Telefónica's globalization process, 4/18 and 5/13/2013). Far from unanimity, a sector of Telefónica positioned itself against the purchase of UMTS licenses in Europe.

⁶⁴ CNMV, Significant event, 6.603, 3/31/2000; *Network World*, April 3, 2000. The BBVA had a 9.1% holding in Telefónica's capital, greater than that owned by Caja de Ahorros y Pensiones de Barcelona (5.01%) (Spanish National Stock Exchange Commission, 7/15/2000).

⁶⁵ CNMV, Significant event, 8.754, 8/22/2000. Banco Santander Central Hispano (BSCH) and Banco Bilbao Vizcaya Argentaria (BBVA); ABN AMRO Bank N.V., Chase Manhattan Bank, Citybank/Schroder, Dresdner Kleinwort Benson and Salomon Smith Barney. The loan was divided into two portions of €6 billion (998.316 billion pesetas), with a term of 364 days, extensible for an additional year and a second portion of 2 billion (332.772 billion pesetas) with a stipulated term of three years. Telefónica lost 4.7% on the stock market, closing at less than €22 (*ComputerWorld*, August 23, 2000). The oral history of Telefónica perfectly records the colossal amounts of money sunk into the operators, which have led to problems that have yet to be solved, as occurred with Yoigo-Sonera (Conversation with Fernando Panizo, 2/1/2017). Xfera (Spain), Quam (Germany) and Ipse (Italy) threw in the towel even before beginning to provide services (*El País*, September 29, 2002). Xfera sold its UMTS license to Abengoa in an effort towards diversification in the information and telecommunications sector; this company, in turn, through its subsidiary Telvent Sistemas y Redes purchased for €25 million 3.71% of the capital of Xfera, a percentage that it increased to 5.4% with the purchase of shares in Xfera that were in the hands of Vivendi (*Cinco Días*, December 30, 2002; CNMV, Significant event, 42.988, 6/30/2003).

The UMTS licensees operated for a while in an environment of uncertainty, in fear that the government would knuckle under to the fundraising pressure and award new licenses, restricting business expectations

forged a broad alliance that included UMTS business, along with another thirteen joint actions, among which the Telefónica Group's holding in the bank Unoe.Bank, S. A. stands out.⁶⁶

However, the agreement, a lifeline for a very worn Villalonga, 'lacked concrete resolution' and BBVA ended up with a questionable participation in the consortia for the UMTS licenses⁶⁷.

In a similar manner, the competition began to take shape with the transversal alliance between the electric companies and telecommunications companies (Endesa with 38.9% of the capital, Unión Fenosa with 23.6% and Telecom Italia with 37.5%. Under the name of Auna, the new rival consortium would cluster together the holdings of each of the members in the telecommunications sector in Spain⁶⁸.

Telefónica, with its mobile subsidiary, subordinated the entry into the European market to the profitability of the investment, along with the reduction of risks through the alliance with technology and financial partners that would limit the financial exposure of the company, without losing control over the operations. In the search for allies, the choice of local partners took on great importance⁶⁹. However, it must be said that the entry strategy took on a different shape according to the countries it planned to enter.

Telefónica decided to abandon the British auction due to the high price reached and the fact that BBVA, its partner in a strategic alliance, was opposed to any further bids by the operator⁷⁰. Following the British episode, the main European governments remodeled the license concession system, requiring candidates to adapt to the new circumstances.

The German market represented both an opportunity and a challenge, because the experience already acquired in other countries could provide a privileged position for the launch of its operations. Telefónica began to assume positions in the IP network and Internet portal segment, thanks to its entry in mediaWays and in Terra Lycos, the second largest IP network and Internet portal operator in Germany, respectively, as well as in Iobox, the mobile Internet portal acquired by Terra Mobile (Rozas, 2003, p. 45; Telefónica, *Informe Anual*, 2000, p. 80; *PCWorld*, October 1, 2000)⁷¹. To compete in Germany, Telefónica, now without the support of important banking and infrastructure companies (BBVA, La Caixa, Banco Zaragozano), joined forces with the operator

⁶⁶ Telefónica and BBVA created the Monitoring Committee for their alliance with collegial senior management (Emilio Ybarra and Francisco González for BBVA and J. Villalonga for Telefónica) and ten members distributed evenly. A coordination unit was also created for the work groups, under the direction of Pedro Luis Uriarte and Luis Martín Bustamante. The first results were two collaborative agreements related to the new economy. In line with the alliance's approach, the partners began negotiations with other potential candidates with a compatible strategy. On its own, BBVA signed an agreement with Logista, Terra and the German group Bertelsmann to develop e-commerce and logistical operations derived from it (CNMV, Significant event, 6.622, 4/6/2000).

⁶⁷ To determine the possible effects of the BBVA alliance on competition, the Ministry of Economy opened a case that was dismissed by the Competition Defense Service (*El País*, February 24 and May 24, 2001).

⁶⁸ The consortium, worth 3.2 trillion pesetas, invited Banco Santander Central Hispano (BSCH) to join (*El País*, April 7, 2000). Shortly afterwards, it was subjected to restructuring.

⁶⁹ Telefónica, *Informe Anual*, 2000, p. 80; CNMV, Significant event, 6.603, 3/31/2000.

⁷⁰ CNMV, Significant event, 6.709, 4/17/2000.

⁷¹ Creation of Terra Lycos (Jelassi & Enders, 2005, p. 401). The auction design allowed each eligible participant to bid for two or three blocks of 5 megahertz of the spectrum, out of a total of 60 megahertz up for sale (*RCR Wireless*, May 1, 2000). A bidder could win two or three portions, which meant that there would be between four and six winners. Seven bidders participated in the auction, the largest of which fought tooth and nail for three lots and the result of the fifth winner, but the two strongest potential participants refused to abandon the auction. At the last moment, in light of the pressure from the capital markets, the largest holders agreed to reduce their demands from three to two lots and to end the auction with two new participants (Cramton, 2013, p. 6).

In the 1990s, the expansion of Telefónica throughout Europe was very limited, as it lacked any broad implementation in the area; the situation changed after 2000, with the acquisition of UMTS licenses in several European countries

Orange and the Finnish company Sonera (Xfera's partner)⁷². In August 2000, the 3G Group, 57.4% of which was owned by Telefónica Móviles and 42.6% by the Finnish company Sonera, obtained one of the six UMTS licenses in Germany through the instrumental company Marabu, with a cost of €8.471 billion (*Official Journal of the European Communities*, C 305/8, 10/25/2000)⁷³.

Unlike the preferred auction processes in the United Kingdom or Germany, the French government brought out four third-generation mobile telephony licenses to be awarded in a tender process (*sousmission comparative* or *'beauty contest'*) that rewarded different qualitative criteria, such as the scale and speed of deployment of the network. To the despair of the authorities, who counted on an avalanche of candidates, only the three existing mobile operators entered the tender (France Télécom, SFR [Vivendi] and Bouygues Telecom, along with Telecom Italia). Other groups, among them the American MCI Worldcom group, the Swedish Tele2 and Telia, the Australian One.tel and the British Virgin merely studied an offer⁷⁴. While not an operator, Suez Lyonnaise des Eaux considered participating along with several possible candidates for a license, including the Dutch company KPN, Telefónica and the Canadian company TIW. The Spanish operator decided to join the project in a holding with the capacity to incorporate one or more minority partners, and a shareholding of 40%⁷⁵. However, the great alliance that was negotiating opted for the Dutch company KPN, as we will see. Both companies clearly understood that UMTS was vital for their future on the old continent⁷⁶. The ST3G consortium resulting from the agreement with Suez decided to withdraw from the auction due to the excessively high cost of the license and the large amounts to be invested. Others followed suit (Bouygues Telecom), and so only left France Télécom and SFR were left. Next, Telefónica demonstrated its interest in the two UMTS licenses that were left to be assigned, as did the Japanese company NTT DoCoMo and Deutsche Telekom⁷⁷.

Access to Italy took place through an agreement with the telecommunications service partner ACEA to participate jointly in the tender awarding five UMTS licenses. The auction

⁷² CNMV, Significant event, 21.979, 4/27/2000; *El Mundo*, May 7, 2000.

⁷³ Other sources (*Computerworld*, August 18, 2000) indicate costing variants: 1.4 trillion pesetas (€8.409 billion); a return rate of 22-23% was expected, with a 50/50% initial debt-capital structure (CNMV, Significant event, 24.278, 8/18/2000); the other successful bidders were T-Mobil, Mannesmann, E-Plus, Mobil Com and Viag Interkom (Little, 2001, p. 5). According to some specialists, the purchase of the UMTS license in Germany, among others, did not produce financial gains (Berne & Pogorel, 2004, p. 13).

⁷⁴ *La Tribune*, October 20, 2008; *RCR Wireless News*, June 12, 2000. In the French tender, all the bidders committed to paying an initial spectrum quota of €4.95 billion (Hocepiet & Held, 2011, pp. 26-30).

⁷⁵ Suez Lyonnaise des Eaux (SLdE), a candidate that had repeatedly failed in mobile telephone bids in France, was well-positioned to win one of the four licenses in play. SLdE transferred a 10% holding in ST3G to the Groupe Arnault, member of the FirstMark Communications consortium, the national radio local loop operator (*L'Usine Nouvelle*, 2.757, 11/23/2000). The communication by SLdE was estimated to be worth 40 billion francs (€6 billion), more than 15% of the group's revalued assets. Alongside SLdE in the communication were Lyonnaise du Câble (50.1%), the television channel M6 (35.5%), the TPS satellite (25% directly and 25% through M6) and the cable channel Paris Première (54% directly and 11% through M6). The media reminded that Telefónica had its Internet company Terra Networks, with a market cap of around €26 billion, 30% of the total value of its parent company (*La Tribune*, October 20, 2008; *Le Monde*, February 1, 2000). Suez Lyonnaise des Eaux maintained a presence in Spain through Tractebel.

⁷⁶ CNMV, Significant event, 21.979, 4/27/2000; *El Mundo*, May 7, 2000. By 1996, there were 400,000 mobile telephones in Spain and six years later, this figure reached 31 million (Senate-commission, October 1, 2002, 329, p. 5). Telefónica had twenty million mobile telephone subscribers around the world in 2000. Throughout the 1980s and early 1990s, Spain lagged behind the large EU countries in terms of investments in telecommunications. The expansive profile of mobile telephony in the country resembled that of France during the second half of the 1990s (Girard & Gruber, 1996, pp. 18-19).

⁷⁷ *Économies et sociétés*, 37, 2003, p. 5; *Wireless*, February 2001, p. 5; Telefónica (2001), p. 12; *Clubic*, February 2, 2001; *El País*, December 11, 2000. Each of the successful candidates in the French process was required to pay €4.950 billion (823.61 billion pesetas) per license, so that the overall amount of the process reached €19.8 billion (3.29 trillion pesetas). Sources from Suez Lyonnaise indicated that their alliance with Telefónica was limited for the moment to France, although it did not rule out participating in the UMTS license concession in Belgium with the Spanish operator (*ComputerWorld*, August 23, 2000). The French government sought resources to continue to finance retirements and the state deleveraging process; in the opinion of some experts, the French government, judging from what could rationally be anticipated, simply reproduced the probable results of an auction (Curien, 2002, p. 152).

Telefónica subordinated the entry into the European market to the profitability of the investment and reduced risk through the alliance with technology and financial partners, without losing control over the operations

underscored the appearance of alliances of operators from other countries who had arrived in the market; we are referring to the axis formed by Telefónica/Sonera, partners in a UMTS system in Italy⁷⁸. But the vehicle of entry was the IPSE 2000 consortium, of which Telefónica Móviles owned 39.3%, Sonera held 19% and Atlantel and Banco di Roma had an identical percentage. In November, the consortium obtained one of the two 2x15+5 MHz UMTS licenses (the other three were 2x10+5 MHz) for an overall amount of €3.27 billion⁷⁹. The “winners” bore the burden of \$7.7 billion in payment per license and at least another \$8 billion in investments in an enormous and expensive telephony network, along with a heavy debt, even though the only thing they received in exchange was permission to compete in a market in which earnings were far off and hypothetical (Chorafas, 2016, p. 126).

In the case of Austria and Switzerland, Telefónica obtained both UMTS licenses for an amount of €117 and €33 million, respectively. The British lesson on high prices led to the emergence of price reduction strategies through cooperation in offers in other countries (Van Damme, 2000, pp. 4-8)⁸⁰. This happened in Switzerland, where Telefónica repeated the consortium formula in an alliance with Sonera and the Australian company One.Tel (Team 3G), which ultimately left the Spanish company standing alone. The low revenue resulting from the Swiss auction was due to several circumstances. To begin with, it occurred late as compared to the others, and was further characterized by a lower number of bidders as the result of withdrawals and mergers. Four of the nine qualified bidders withdrew from the proceedings, while two of those remaining announced merger plans a few minutes before the auction⁸¹. Finally, the price

⁷⁸ Telefónica had interests in the group through its 34% package in the Atlantel data division, the lead group of Acea that previously had control over Ipse; in Atlantel, Telefonica Data and Acea joined the Fiat group and the group belonging to the Agnelli Ifil family (*Total Telecom*, August 23, 2000).

⁷⁹ *Official Journal of the European Communities* C 349/7, 6-12-2000; CNMV, Significant event, 21.717, 4/14/2000; *Total Telecom*, August 23, 2000. The chronology indicates August 23 and October as the dates when the IPSE 2000 consortium was founded and one of the two UMTS licenses in Italy was awarded, respectively (Telefónica, 2001, p. 12; Telefónica, *Informe Anual*, 2000, p. 82). ACEA, leader in the electricity and water sector, provided telecommunications services in Rome and Lazio, in association with Telefónica. Other figures on the holdings of the partners in the IPSE 2000 consortium: Telefónica through Telefónica InterContinental (39.25%), Sonera (19%), Atlantel (12%), Banca di Roma (10%), Goldenegg (4.8%), Xera (5%), Planet Mobile (0.5%), Falck, along with a group of Italian municipalities (3%) (*Newswire*, September 11, 2000). ACEA-Telefónica SpA, subsidiary of the Telefónica Group in Italy, announced its intent to merge with Telexis, a subsidiary of the FIAT Group to provide business services, particularly Internet-related services. The early withdrawal of Blu, the lowest and weakest bidder, lowered the price of the operation and triggered a complaint by the Italian government against Blu for alleged violation of the rules (Heuvelhof et al., 2009, p. 129). Consortium of companies, the most important of which were: Autostrade, a state SpA company, had control over 32%; British Telecom owned 20%; Benetton had 9%; Mediaset, the private Italian company in the television market, and Bnl, one of the largest Italian banks, had 7% (Bartolini, 2005, p. 10).

⁸⁰ Half of the expected revenue was obtained in the ascending price auction for UMTS licenses in Austria, halted twice by the government for possible collusion, which was expressly prohibited (Sokol, 2001). Licensees in Austria: T-Mobile Austria, GmbH, 3G Mobile Telecommunications, GmbH, Mobilkom Austria AG (subsidiary of Telekom Austria), Hutchison 3G Austria, GmbH, ONE, GmbH and TRA 3G Mobilfunk, GmbH (PRESS RELEASE No 44/07, Judgment of the Court of Justice in Case C-284/04 and Case C-369/04 T-Mobile Austria, GmbH and Others v Republik Österreich, Hutchison 3G UK, Ltd and Others v Commissioners of Customs & Excise; The award by the state of 3G mobile telecom, *CJE/07/44*, June 26, 2007). The historic operators had the advantage of the pre-existing 2G networks, some of the components of which could be used in the 3G system. As a matter of fact, the potential participants had strong incentives to partner with the holders, which is what eventually occurred (Sokol, 2001). During the summer of 2000, Mobilkom Austria AG deployed the first comprehensive GPRS network in the world, the packet switching data support medium for GSM (Taferner & Bonek, 2002, p. 3).

⁸¹ *Network World*, September 4, 2000; *Wall Street Journal*, June 6, 2000; Sokol, 2001, p. 24. The Swiss regulator halted the auction when the number of bidders for the four licenses was reduced to only four after the announcement of the merger of the Swiss mobile telephone companies diAx and Sunrise. Telefónica expressed its displeasure and rejected the merger of the operators as an excuse (*SwissInfo*, November 26, 2000). The auction resumed in response to the pressure from businesses and the public (Gruber, 2005, p. 257). In 2006, The Federal Communications Commission (ComCom) revoked without compensation the unused 3G Mobile AG UMTS license for a violation of the coverage conditions by the licensee. At the same time, ComCom rejected the 3G Mobile requests related to the transfer of the license to one or more existing UMTS licensees (ComCom, April 13, 2006).

Not everything was a success and even when Telefónica did succeed, the priority stake on the main markets in the EU failed to produce the desired yields; the massive financial resources required a mandatory selection of objectives

was affected by the new financial situation that the UMTS auctions had helped promote, i.e., generating an enormous debt that made it more difficult to later win licenses⁸².

Not everything was a success, and even when Telefónica did succeed, there was a delay between the priority bid for the main EU markets (the UK, France, Germany and Italy) and the effective yields, which left out the UK and France. Furthermore, the vast amount of financial resources required to set up the networks and implement the service imposed an obligatory selection of objectives⁸³. This explains why Telefónica bowed out of the auction for five third-generation licenses in Poland, in spite of having originally considered this market as strategic and even having taken the first steps with the creation of a consortium, along with the construction company Ferrovial, Futuro.com and the local company Polpager. A multi-million euro debt, fueled by investments in licenses in Italy and Germany, made expense containment recommendable. In addition to the financial exposure were some especially onerous conditions, among them the subordination to local capital and the concentration of the payment in the first fourteen years of a license granted for twenty years⁸⁴.

Telefónica was knocked out of the tender in Sweden, one of the most advanced countries in the world in mobile communications and Internet, a historic position left over from its significance in the early moments of telephony⁸⁵. The Scandinavian country sought the largest number of licensees to best meet the need for consumer services and ensure competition among the 3G operators (Larsson, 2008, p. 24). Telefónica competed with nine international groups, according to the well-known scheme of a consortium with local partners, i.e., through the Reach Out Mobile AB consortium, made up by the Finnish operator Sonera and the Swedish investment fund Industri Kapital. The competent authority evaluated the proposals in a double phase, based on two sets of criteria: financial capacity/technical and commercial viability in the first phase and coverage in relation to the area and population and the deployment speed of the networks in the second phase. The concessions were granted to the Swedish operators Europolitan, HIG3, Tele2 (Netcom) and the Orange Sverige consortium. The Reach Out Mobile AB consortium was ruled out for the lack of “technical reliability,” but in all reality, it was due to the lower level of commitment in terms of building base stations and investment. The decision was challenged before the Tribunal, alleging that it was improper to reject the application for possible problems in the project organization and network construction, since any license holder would face identical problems (Andersson, Hultén & Valiente, 2005, pp. 577-593; Curwen, 2002, p. 82; *El País*, December 17, 2000)⁸⁶.

⁸² In just five years, the net debt of mobile telephony companies nearly quintupled: it soared from €7.4 billion in 1998 to €36 billion in 2002 (Preissl & Müller, 2007, p. 447). The specialized financial press insisted on this runaway debt for licenses (*The Economist*, May 3, 2001). Some assigned greater responsibility in terms of debt to the imprudent acquisitions and the general/creative accounting than to the license fees, no matter how burdensome they were (*The Guardian*, August 27, 2002).

⁸³ Conversation between Luis López-van Dam and the author about Telefónica's globalization process, 4/18 and 5/13/2013.

⁸⁴ No doubt a reflection of the harsh conditions, the number of candidates was limited to the three existing mobile telephony operators, which forced the ministry to cancel the tender. Telefónica advocated four UMTS licenses (OECD, 2002, p. 31). Futuro.com abandoned the consortium created with Telefónica, considering the conditions proposed by the Spanish operator to be unacceptable (*Bakier*, 12/1/2000; *Baquía*, 12/4/2000); Polpager joined the Elektrim Telekomunikacja holding; Polska Telefonia Cyfrowa (PTC), leader during the GSM era, continued as such from then on.

⁸⁵ CNMV, Significant event, 8.793, 9/1/2000.

⁸⁶ Telefónica InterContinental had a minority share in the consortium (20%) as opposed to 45% by the Sonera Corporation and 35% by Industri Kapital (Telefónica, 2001, p. 12). Sweden, with three second-generation mobile telephone operators, enjoyed a mobile telephony penetration rate of nearly 65%; to participate in the tender, candidates needed to pay 100,000 Swedish kroner (1,940,000 pesetas) to cover administrative expenses and the successful bidder undertook to pay the state a 0.15% royalty from its income until 2015, when the license expires (*NetworkWorld*, September 4 and December 15, 2000). The Swedish tender failed in its attempt to effectively resolve the users' aspirations and Sweden failed miserably in applying the ambitious coverage criteria (Welin, 2006, p. 2).

6. The companies: from successful bidders to mobile network operators

The introduction of third-generation UMTS in Europe was delayed by the financial crisis in telecommunications due to the astronomic costs of licenses for mobile telephony operators. The enormous investments required to build the infrastructure were combined with serious financial problems in the sector, with negative effects on the deployment of the 3G networks in the area (Palmberg, 2006, p. 95)⁸⁷.

Our analysis should go beyond merely listing the concessions, which is a very common trend, and delve briefly in how they operated. We will do this for several countries, by way of example, but not without first indicating that two years after the purchase of these expensive licenses, no operator was providing UMTS services. The relative loss in share value varied from a minimum of 55.4% for Telefónica to a maximum of 95.6% for KPN (Columbus, 2004, p. 4).

We have the self-assessment of Telefónica regarding its early actions in Germany, Italy, Switzerland and Austria. Since day one, the operator channeled the management of the companies holding 3G mobile telephony licenses to take advantage of the synergies and scale economies, with limited financial exposure. Throughout 2001, it negotiated the supply and finance contracts with suppliers, with noticeable progress in the interconnection agreements with the other operators to share part of the network infrastructure needed for UMTS (Telefónica, *Informe Anual*, 2001, p. 40).

Very soon and in full agreement with the explosive nature of the business, the situation changed. The market conditions (severe downward corrections in the estimates of the demand for 3G services), technology (once again, a delay in the availability of UMTS technology), competition (the emergence of barriers to the entry of new candidates due to an increase in penetration in the European markets of already established operators), along with financial and regulatory aspects pushed Telefónica to revise its business model and redefine its short- and medium-term objectives in Europe. During the last quarter of the year, Telefónica totally eliminated exposure in three European countries (Germany, Austria and Switzerland)⁸⁸.

If we analyze by country, in Germany, the deployment of UMTS was delayed by the lack of terminals, among other reasons. Based on agreements for roaming and the exchange of infrastructures with another operator (Deutsche Telekom AG) and with the authorization of the German regulator, Telefónica's 3G Group debuted in late 2001 as a virtual mobile operator (VMO), with GSM/GPRS technology. Later, in light of the operating and financial results, Telefónica Móviles realized that the results of the 3G Group in its first stage were noticeably distant from its original objectives. These deviations materially affected the expected profitability of the company in the context of an important deceleration of growth of the

⁸⁷ The massive indebtedness of the European operators with the banks and financial markets unleashed a vicious circle: downward valuation of the operators, successive increase in the debt and capital cost, negative impact on the investment capacity and profitability, and the crash of the operators' stock market value. Meanwhile, in the issue of obligations for 2000, Telefónica was generally positioned below the main European operators (including the 64.7% of Vodafone, the 23.9% of Deutsche Telekom and the 59.64% of British Telecom), so they suffered from less negative effects (Didier & Lorenzi, 2002, pp. 86-87).

⁸⁸ The new valuations obtained from the plans in Germany, Austria, Italy and Switzerland required accounting for extraordinary provisions, attributable to the recovery of assets, and providing for restructuring expenses. It thus made possible a strong generation of cash flow in Telefónica Móviles and flexibility to optimize its strategy. These measures were pioneering in nature in Europe and well-received by the market; in 2002, the investment in wireless telephony fell by 50.7%. The extraordinarily negative net results caused by the recovery of assets, added to the UMTS restructuring expenses in Europe were estimated at €4.9582 billion (Telefónica, *Informe Anual*, 2002, pp. 48-49 and 214).

The market, technology and competition, along with financial and regulatory aspects, pushed Telefónica to revise its business model and redefine its objectives over the short and medium term in Europe

wireless market in Germany. As a result, Telefónica Móviles and its partner Sonera completely halted the commercial operations of its Quam brand in light of the very low expectations of generating value for the shareholders of the 3G consortium. Another telecommunications victim, Quam declared bankruptcy, no doubt explained by the costs of technology investments and the UMTS license⁸⁹.

In Italy, the IPSE 2000 shareholders opted in 2002 to postpone the launch of commercial operations and to restructure the company. In Switzerland and Austria, no pertinent commercial agreements had been signed, including 2G roaming agreements, network distribution agreements and supplier financing. With all of this, in Austria, it did not rule out a possible alliance though a takeover of a UMTS operator or cooperation with other UMTS suppliers. The acquisition formula or the alternative of cooperation were also considered for other countries, such as Germany, Switzerland and Italy (Securities and Exchange Commission, 2003, p. 88; Lemstra and Melody, 2014, p. 175; Picot and Doeblin, 2013, p. 95; *Telecompaper*, April 2, 2003)⁹⁰.

In the first half of 2002, the general UMTS market conditions suffered revealing changes from the quadruple competitive, technological, financial and regulatory perspective. These changes obligated Telefónica Móviles to revise its European strategy. To start with, it had to assume the clear resistance by the European Commission to any relaxation of regulations⁹¹. The delay in the technological development of UMTS suppliers, as well as the uncertain competitive capacities of UMTS in terms of the existing technologies caused a constant delay in commercially viable UMTS technology, which did not foster a fast and large-scale accumulation of 3G networks. As a result, the operators focused on building their 3G networks in the same areas – the major metropolitan areas of each country – to meet the licensing requirements and their own commercial needs, in such a way that the network distribution agreements lost effectiveness. In a nutshell, the important cost savings derived from network distribution agreements were reduced to nothing, while the financial resources necessary for network deployment increased⁹².

The general delay in the introduction of a commercially viable UMTS technology was also due to the lack of UMTS mobile terminals, which were reduced to a small number of prototypes with technical problems, as well as problems with the hardware and software of the network

⁸⁹ *DW Akademie*, October 14, 2002.

⁹⁰ Bartolacci and Powell (2012, p. 180) did indicate roaming agreements in Austria. GPRS (general packet radio service or 2.5G), the natural evolution of GSM to 2.5G, tolerated voice and high-speed data transmission. A VMO is a mobile operator that, lacking a network, purchases capacity wholesale from operators owning physical networks and then sells it to its customers. Telefónica chose NavisRadius (TM) software from Lucent Technologies to manage its new UMTS network, as well as its GSM and GPRS networks (*UMTS Forum*, January-March 2004).

⁹¹ Concerning regulation, see Faulhaber, Madden and Petchey, 2012, pp. 247-267.

⁹² Regarding the combination of delays in 3G network deployment and financial problems, see Louta et al. (2003). Among the technical problems of 3G telephones and the base stations were the high energy consumption and increased software content, as these were in fact pocket computers. The demand for hybrid telephones (3G telephones capable of reverting back to 2G) made it even more difficult to manufacture third-generation terminals and meant delays in their availability. The financial repercussions of the delay included the deterioration of the share price and the added difficulties to raise money due to the negative weight of the debt on their credit ratings. The threat of more debt hovered over the operators, particularly the new participants. In the device manufacturers, the operators found various ways to alleviate the harshness of the 3G deployment conditions. One consisted of "supplier financing," in which they loaned money to client operators. Loaning up to 200% of the cost of the hardware meant that the suppliers accepted risks, especially in loans to new operators yet to generate any revenue. Some of them compensated the delay in the 3G launch by becoming resellers of the existing 2G networks belonging to other companies. This strategy provided short-term revenue and allowed the new participants to gradually introduce their 3G infrastructure by offering their subscribers hybrid devices. This implied as a logical conclusion "network exchanges" (network-sharing), in which two or more operators agreed to share part of their 3G infrastructure to speed up the deployment of their 3G networks (*The Economist*, May 3, 2001).

The uncertainty regarding the commercial reality of the UMTS technology and the evolution of the services that it must support made it advisable for Telefónica Móviles to revise downward the demand for 3G services

equipment. This general delay permitted the historic operators to soften the ‘migration’ to the UMTS technology and lifted entry barriers for new operators. The delay situated the main European markets on the brink of saturation and hindered new operators in their attempt to capture lesser value customers or users who were still without service, even for those who used the preceding technologies, i.e., GSM. In spite of the delay, Telefónica gave validity to the UMTS technology as long as there was a small number of operators in each country. The difficulty by new operators to gain access to mature markets and a level of revenue per user that was lower than previously estimated underscored the importance of a minimum market quota to neutralize the cost pressures and achieve the required performance⁹³.

In short, the uncertainty about the commercial reality of the UMTS technology and the evolution of the services that it needed to support made it advisable for Telefónica Móviles to revise downward the demand for 3G services. To prepare the financial statements for 2001, Telefónica Móviles had compared the accounting value of the licenses to the financial projections included in the business plan and considered the investments made so far to be recoverable. In July 2002, the company agreed to revise the value reflected on its balance sheet for its assets in Germany, Austria, Italy and Switzerland. According to this examination, the financial statements on June 30, 2002 incorporated an extraordinary net provision in the amount of €4.902 billion, of which 310 million corresponded to the provision for restructuring expenses in these countries and €4.592 billion to the provision for the restructuring of assets (tangibles and intangibles) allocable to Telefónica Móviles (Telefónica, 2002, pp. 4 and 6; Khosrowpour, 2004, pp. 132-133)⁹⁴.

The first transfer of the UMTS spectrum between companies in Europe did not take long to arrive. In December 2003, Telefónica Móviles España sold to Mobilkom Austria Aktiengesellschaft & Co KG all of its share in 3G Mobile Telecommunications, GmbH, the Austrian subsidiary of Telefónica Móviles España, holder of the UMTS license, for €13.65 million⁹⁵.

7. Conclusion

This article offers a succinct report on the implementation in Europe of the third generation of mobile telephony and its arrival in Spain from a multidisciplinary perspective. The work sheds light on the effective operation of the European telecommunications market, in which certain supranational regulations were combined with the maintenance of prerogatives in the hands of member states for the application of said guidelines.

In Europe, the third generation of mobile telephony was introduced under a common technical standard and regulation, but according to specific conditions imposed by the nation-

⁹³ We followed very closely the Securities and Exchange Commission (2003), p. 89. Although technically very different from the GSM, the economic and competitive development of UMTS could depend closely on the previous GSM market structures (Kruse, 2004, p. 185). Telefónica Móviles España obtained two GSM 900 licenses for fifteen years, which ended in 2010 and 2020, one DCS-1800 license for 25 years, which ends in 2023, and a UMTS license for twenty years, which expires in 2020. DCS (Digital Cellular Service) 1800 was an implementation of the GSM standard that operated on the 1800 MHz frequency (Securities and Exchange Commission, 2005, p. 36).

⁹⁴ Independent experts advised Telefónica Móviles in the evaluation of the business plans of the Group operators in Europe (Securities and Exchange Commission, 2003, p. 87). The losses generated in 2000-2003 have been estimated at between €1 and €2 trillion; the sum of €9.1 billion gave Telefónica the fifth position among the companies with the greatest expense on UMTS licenses (the so-called gorillas), behind Vodafone, British Telecom, France Télécom and Deutsche Telekom; immediately after it on the list was KPN and Sonera (Columbus, 2004, pp. 2-4).

⁹⁵ Telefónica, *Informe Anual*, 2003, pp. 168 and 254; *Investegate*, December 24, 2003; *El Periódico*, December 24, 2003.

states. This double reality shaped a map with a certain level of diversity and the results varied from one country to another. The evidence provided indicates that the regulatory activity in assigning the scarce resource that was the radio spectrum determined to a large extent the future of mobile telephony, in contrast to the feelings of some contemporary analysts. Furthermore, the strategy of the network operator companies played an important role in the configuration of this varied scene and promised the deployment of the upcoming generations of mobile telephony. Spain presents a case of great interest, in particular due to the late presence of the telecommunications monopoly and for being a country not included among the ten largest telecommunications markets, but with an operating company that was among them, as clearly indicated in the reports from the U.S. International Trade Commission in 2010.

This position and the business performance give us a clear picture of everything that happened with the UMTS. How was it possible that Telefónica anticipated the devaluation of its assets, lowering the business expectations and adjusting its balance, and all of this while facing lower losses than the rest? The simplest response is that by lacking the technological capital developed and accumulated in 3G, Telefónica did not run the risk of losing it, and therefore had not generated any expectations as to its profitability associated with its innovative capacity. Rather Telefónica, with less debt than the other large European operators, stood out for its enormous financial power, explainable by its status as a private monopoly with a significant public holding, sponsored by the government as a cog in the machinery of development and economic intervention and also as an element in the political game as the CEO of the company. When the auctions applied pressure in terms of technology in order to capitalize the market potential over the short term without an adequate technological deployment in place, the most technologically powerful companies and consortia failed. The value of their technological capacity was in fact devalued, but the profitability of Telefónica was not as strongly affected.

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Motivations for choosing brick-and-mortar stores between urban commerce and shopping centers: the case of Logroño retail

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Abstract

The aim of this work is to identify the reasons behind the choice of brick-and-mortar stores to make purchases and provide new evidence of the role that such establishments play in the omnichannel environment. An empirical study carried out in the city of Logroño (Spain) shows that utilitarian and hedonic motives are intertwined and differ according to age. Young people opt for shopping centers and the range of products and services they have to offer. Adults and elderly customers associate personal attention with shops located in the city center. The fundamental conclusion of the present work is that the establishments located in shopping centers and urban centers can coexist, each developing their own strengths. Both types of establishments provide interesting benefits for consumers who, in certain situations, opt for brick-and-mortar stores and value the offline shopping experience.

Key words

Motivation, shopping behavior, personal attention, brick-and-mortar store, urban commerce, shopping center.

How to cite this article

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Commerce with brick-and-mortar stores continues to be relevant and forms part of today's omnichannel movement

1. Introduction

Only four decades ago, the retail sector in cities evolved towards new forms of sales, such as specialized stores and shopping centers. This caused shoppers to shift towards more peripheral areas (O'Callaghan & O'Riordan, 2003; Hernández & Jones, 2005; Medrano, Olarte-Pascual, Pelegrín-Borondo & Sierra-Murillo, 2016). Later, innovations in technology and the media promoted the development of different means of sales without a physical store, such as in the case of mail order, telephone, television and online sales. This eventually led to multichannel distribution as a means of reaching and satisfying the needs of different segments of consumers (for example, Neslin et al., 2006; Verhoef, Neslin & Vroomen, 2007).

The emergence of smart mobile telephones, along with the development and democratization of the Internet have given way to omnichannel retail sales. This provides a broader perspective of the channels, by considering how today's consumers, with their various smart mobile devices (wearable and *insideable*), can sift among numerous alternative offers, from offline channels to online ones, and passing through the social networks, blogs and numerous applications that facilitate contact with their favorite brands and meeting their needs (Verhoef, Kannan & Inman, 2015; Juaneda, Mosquera & Sierra, 2016; Melero, Sese & Verhoef, 2016; Mosquera, Olarte & Juaneda, 2017).

The rapid evolution of this new context produced fateful omens for traditional brick-and-mortar stores. However, among the omnichannel options, different shopping combinations emerged, in which brick-and-mortar stores continued to be present (for example, showrooming and webrooming). In addition, successful businesses that emerged online have also seen the need to establish a physical point of contact with customers, and have complemented their business by opening brick-and-mortar stores. Pauwels and Neslin (2015) examined one company's database and found that when said company added a physical store to its distribution channels (catalog and Internet sales), their annual income experienced a net increase of 19.8%.

As a result, commerce with brick-and-mortar stores still remains and forms part of the current omnichannel movement (Mosquera et al., 2018). Stores in cities will continue to have a future, as long as they are capable of providing some value to consumers. But what are the factors that prompt consumers to go to a shopping center (SC) or out shopping around the city (urban commerce, UC)? The answer lies in the motivations of the customers. The aim of the present work is to investigate the motivations that cause consumers to opt for one type of physical store over another when shopping.

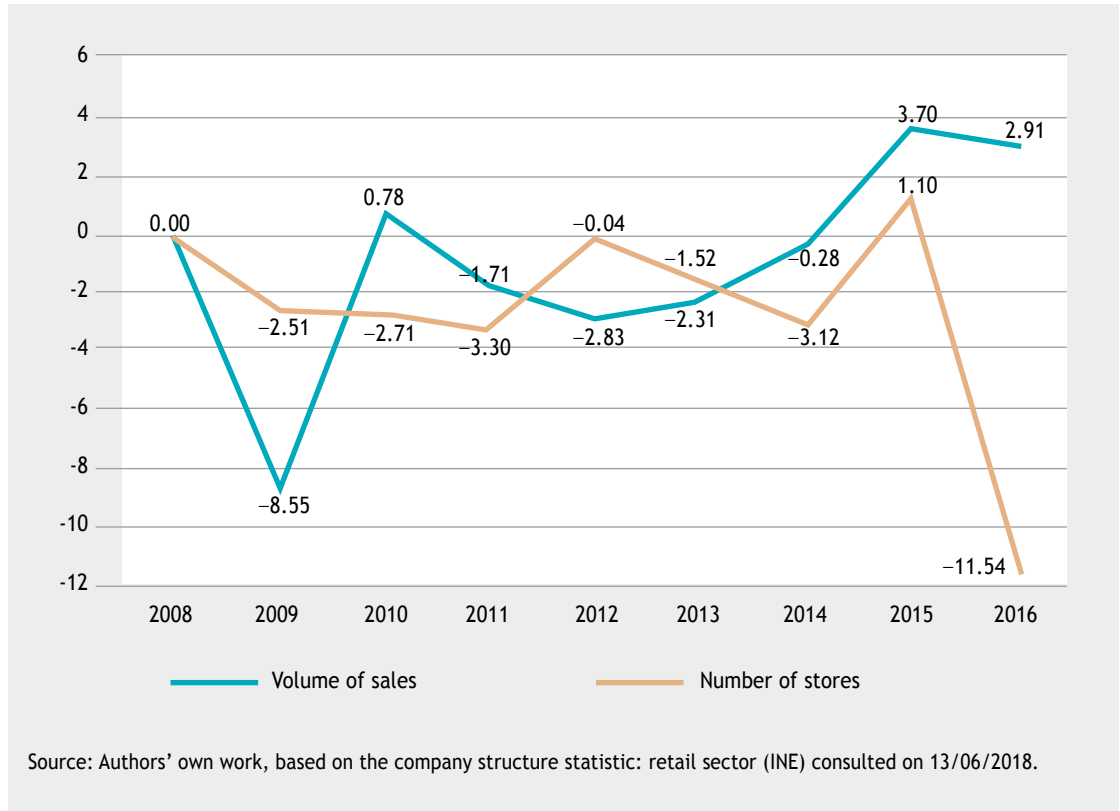
2. Retail commerce with brick-and-mortar stores: traditional city commerce versus shopping centers

The economic crisis was accompanied by a drastic reduction in consumption and many urban retail stores were forced to close (Medrano & Olarte-Pascual, 2016a, 2016b). This affected smaller shops more than it did larger stores. As seen in Table 1, in Spain the number of stores decreased constantly between 2008 and 2016. While sales have decreased prior to 2012, they have held steady and even increased over the last two years for which data are available (2015 and 2016). This represents the substitution of small shops with few sales with stores with larger sales, which are almost certainly larger in size.

The subject of small UC establishments continues to be a constant concern for governments and researchers alike. Governments have implemented plans to support traditional retail trade

Different smart mobile devices allow consumers to shift between offline and online channels

Table 1
Evolution of commerce



and to promote commercial areas in UC. Researchers, on the other hand, have focused their work on different aspects. Grewal, Levy and Kumar (2009) stress the idea that survival in a climate of crisis and in such a competitive environment as retail requires more than just low prices and innovative products. In this sense, numerous studies have evidenced the importance of the shopping experience in choosing from among the different types of establishments (Gentile, Spiller & Noci, 2007; Verhoef et al., 2007; Tynan & McKechnie, 2009; Rose, Clark, Samouel & Hair, 2012). The search for pleasurable experiences is often much more important than the mere acquisition of products (Arnold & Reynolds, 2003, 2012).

At the same time as commercial establishments are being closed, new formats are appearing and other traditional ones are being brought back in response to new consumer trends. For example, bartering, group purchases and second-hand goods are seen at buying and selling stores (e.g., at *Cash Converters*, you can enter with a bike and leave with an e-book). Concern for health and the environment has resulted in health stores specialized in organic and/or sustainable products. In addition, the commerce presided over by the Chinese community has also evolved, contributing new types of stores in different sectors, such as fashion, at very competitive prices.

Along with the traditional stores in the cities, shopping centers continue to account for a large amount of sales area, continuing to attract a large number of consumers. They have also had a

Many studies have provided evidence of the importance of the shopping experience in the selection of establishment

great influence on the reconfiguration of leisure activities and the cities. The difficult economic situation has also affected the evolution of these centers, which have experienced a clear reduction in growth after 2009 (Martín de la Cruz & Martín Cerdeño, 2013).

Several researchers have compared the factors of attraction of shopping streets and shopping centers. Among them, Reimers and Clulow (2004) believe that shopping centers provide greater spatial convenience than shopping streets. Teller and Reutterer (2008) establish that in the commercial mix, the price-quality ratio and entertainment have an influence on the attractiveness of both the shopping street and the shopping center. The ease of getting around at the place visited is mentioned as an attractive aspect of shopping centers. The environment (odor, temperature, air) is an attractive factor of both, but is more intense for shopping centers. Reimers (2013) establishes that policies to dissuade people from driving would affect shopping habits in retail establishments; he finds that this dissuasive effect would have a more negative effect on purchases made at shopping centers.

In this scenario, urban retail management requires adapting to new trends and poses new challenges in order to continue to maintain the confidence of their customers.

3. Purchasing motivation in retail establishments

In light of the deteriorating situation of commerce in terms of brick-and-mortar stores, the question was raised whether this sector had any sort of competitive advantage that could be exploited. To answer this question, the purchasing motivations of consumers are analyzed. As indicated above, the aim is to investigate the motivations that lead consumers to make their purchases in brick-and-mortar stores in the UC or SC.

Motivation can be defined as a dynamic and internal process that activates, directs and maintains the behavior towards obtaining a goal (Ferguson, 2000). The study of motivation requires analyzing why people initiate actions aimed at specific goals, the intensity with which they participate in the activity and how persistent they are in their attempts to reach their goals (Dawson, Bloch & Ridgeway, 1990; Usín, 2013). The motivations, as determining factors of shopping behavior, have been approached from different conceptual frameworks.

- a) In terms of their origin, considering internal and external motivations (Benabou & Tirole, 2003). Internal motivations constitute the intrinsic motivation that the individual activates himself when desired and for the objective that he deems appropriate. External motivations are those triggered from outside the individual, either by other people or by the environment. While extrinsic motivation influences the behavior based on rewards and benefits, individuals who are intrinsically motivated tend to perform an activity due to a desire to perform the activity that comes from within themselves and not to the external reinforcement. Intrinsic motivation implies participating in an activity for the pleasure and satisfaction derived from it (Barberá Heredia, 2002; Watchravesringkan, Hodges & Kim, 2010).
- b) According to their nature, we can identify:
 - **Cognitive and affective motivations.** Cognitive motivations correspond to the search for tangible, rational or utilitarian attributes (Babin, Darden & Griffin, 1994), while affective motivations are related to emotions like feeling pleasure, for example (Batra & Ahtola, 1991; Holbrook & Hirschman, 1992; Spangenberg, Crowley & Henderson, 1996; Dhar & Wertenbroch, 2000).

54.09% of those responding prefer to shop at shopping centers located on the outskirts of the cities

- **Utilitarian and hedonic motivations.** The utilitarian motivation represents the more rational part of the motivation and includes cognitive and functional factors of behavior (for example, shopping around, comparing prices, looking for sales or discounts). Utilitarian shopping behavior is defined as a rational process that seeks the maximum possible efficiency; shopping is understood as a task (Babin, Chebat & Michon, 2004). The dimensions of the utilitarian motivation are to reach the goal and efficiency. The hedonic motivation is related to sensations, fantasy or emotions surrounding the purchase (Hirschman & Holbrook, 1982; Holbrook & Gardner, 1998; Childers, Carr, Peck & Carson, 2001; Kang & Park-Poaps, 2010). Shopping is seen as a positive experience where consumers enjoy and feel satisfied with the entire experience, without taking into account whether the purchase is ultimately made or not. The store environment is associated with this dimension, since it can influence the positive emotions surrounding the purchase. Examples of this dimension are entertainment or socialization. Arnold and Reynolds (2003) examined the purchases in brick-and-mortar stores and identified six groups of hedonic motivations: (1) adventure shopping (going shopping is an adventure and is stimulating; p. 82); (2) social shopping (shopping to socialize with friends and family); (3) gratification shopping (shopping as stress relief or to improve your mood); (4) shopping to stay current or idea shopping (keeping up-to-date on trends, seeing new products and innovations); (5) role shopping (enjoyment derived from shopping for others, enjoyment from finding the perfect gift for others, as a social function); (6) value shopping (enjoyment that comes from finding sales, discounts or special offers).

Kim (2006), based on Babin et al. (1994) and Arnold and Reynolds (2003), concludes that UC consumers place greater emphasis on hedonic motivations. In the SC, the motivation may be oriented towards the purchase, leisure and social relations (see for example Lotz, Eastlick, Mishra & Shim, 2010; Baker & Wakefield, 2012).

- **Ethical motivation.** In recent years, the presence of a new dimension related to the appearance of the moral aspect has increased (see for example Carrigan & Attalla, 2001; Carrington, Zwick & Neville, 2015). Its introduction is intended to increase the understanding of the complex set of variables that influence shopping behavior. Ethical consumers are ready to put their money where their morals are (Cowe & Williams, 2000).

4. Methodology

As commented in the beginning, commerce with brick-and-mortar stores continues to be relevant and forms part of today's omnichannel movement. But what are the motivations that lead consumers to make their purchases in brick-and-mortar stores in the UC or SC? To answer this question, an exploratory methodology has been proposed, using personal interviews with open-ended questions (Malhotra, 2004; Valles, 2014). Its open-ended structure ensures the identification of unexpected motivations. Qualitative research produces descriptive data, works with the individual's own words and with observations of their conduct (Martínez Rodríguez, 2011, p.18). This type of interview is very demanding and depends on the ability of the interviewer to achieve an environment of trust and credibility during the early moments of the interview and then to maintain this environment. To achieve these conditions, the methodology followed by Arnold and Reynolds (2003) in their study of hedonic motivations was used as a reference, but with a sample that was 2.25 times larger (see Table 2).

The geographical area of study, Logroño, has a single shopping district in the center of the city. Its city center has shopping streets with numerous independent stores (70.02%) (La Rioja

34.55% prefer to shop in the urban center of the city

Table 2
Technical data

Population: shoppers.		
Information gathering method used: personal survey with open-ended questions.		
Sample size: 220 valid interviews.		
Sampling: according to gender and age quotas.		
Date of the field work: March-April 2013.		
Characteristics of the sample:		
• Gender: -Men: 43.18% -Women: 56.82% • Age: -25 and younger (young people): 35.10% -26-65 years old (adults): 41.50% -65 and older (senior citizens): 28.30%		
Characteristics of the geographical area of the study:	UC	SC
Logroño, La Rioja (Spain).		
• Number of stores in the study areas	336	116
• Average size of the stores	112.36 m ²	594.74 m ²
• Ownership: - Sole proprietor	70.02%	5.17%
- Company	29.98%	94.83%
• Number of hypermarkets	0	2

Chamber of Commerce, 2013). They tend to be small family businesses, specialized and run by workers who have in-depth knowledge of the products and who pride themselves on providing excellent customer service. The average size of the stores in the UC is 112.36 m².

In the outskirts of Logroño are two SC characterized by each having a hypermarket and several large specialized stores (*category killers*) that act as generators of customer traffic. The average size of the stores in the SC is 594.74 m², and 94.83% of them belong to business groups.

With regard to the field work, the interviewers were carefully trained and given specific instructions on how to conduct the interviews in order to identify the true motivations for shopping. All interviews were recorded and transcribed. To ensure and verify the quality of the data, the name of each person interviewed was requested, along with a telephone number.

The interviews were viewed, listened to and read several times by the authors for encoding purposes. Each member of the team (individually) identified and encoded the motivations contained in the information collected, using the categorization process developed by Lincoln and Guba (1985). The authors then met to discuss the key motivations and select the most illustrative quotes from the information collected. At this point, the objective was to find points in common, in order to achieve the most exact representation possible of each domain and to develop the conceptual definitions of the motivations.

To analyze whether there is a relationship between the preference for brick-and-mortar stores in the SC or UC and the gender and age, the chi square contrast was applied, and if appropriate, Cramer's V was calculated for tables larger than 2x2.

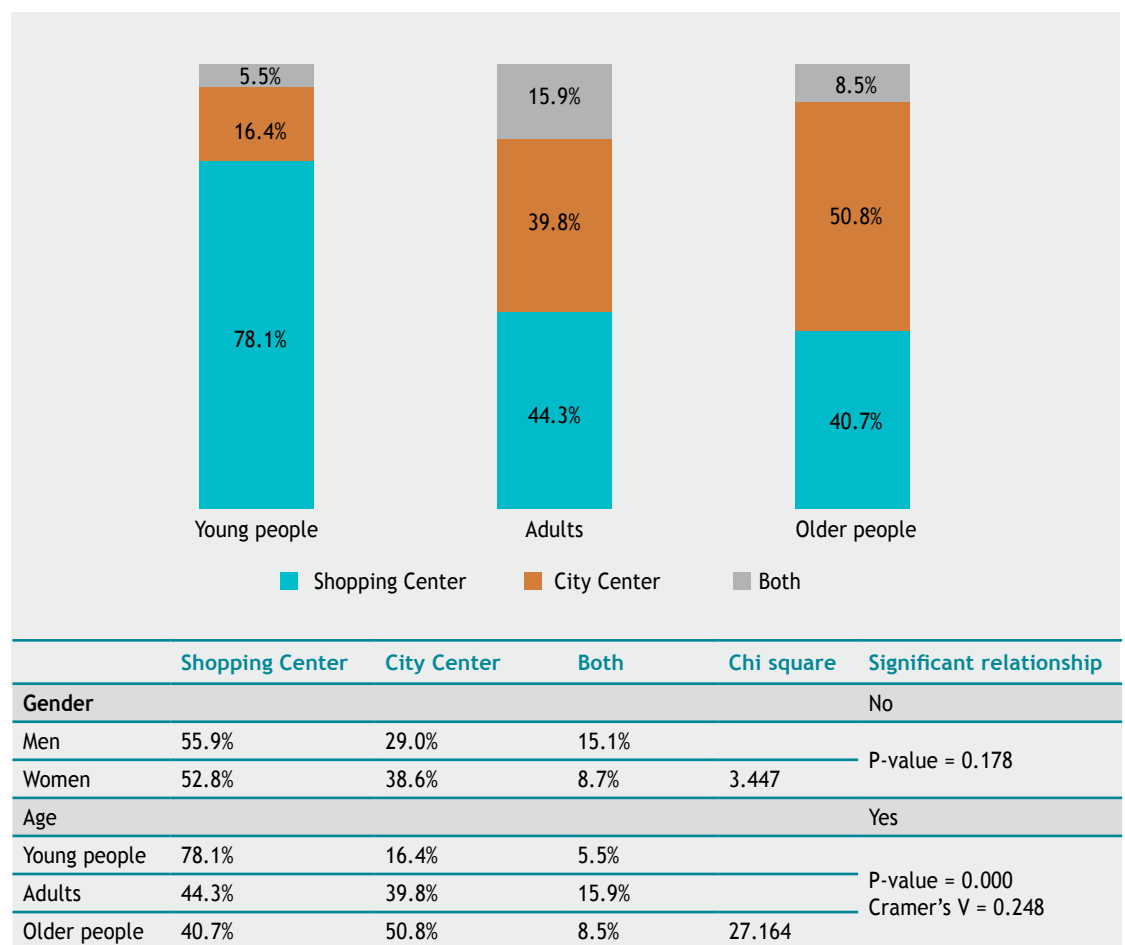
Urban store consumers give importance to hedonic motivations

5. Results

54.09% of the sample prefers SC for their purchases, 34.55% opts for the shopping streets of the UC and the rest, 11.36%, has no preference between the two types (See Table 3). SC are preferred by young people (78.1%) and adults (44.2%). The UC is the favorite of older people (49.18%) and is more attractive for women (38.6%) than for men (29.0%). There are no statistically significant differences in the preferences between the UC and SC according to gender.

Table 3

Relationship between the preference for the UC/SC and gender and age



5.1. Motivations

When asked open-ended questions about the motivations, the interviewees provided a total of 352 arguments. The first motivations of each interviewee have been grouped into codes or primary domains (see Table 4). Their hedonic and/or utilitarian nature is supported in the previous literature.

Shoppers who prefer shopping centers do so for more utilitarian motivations than hedonic ones

Table 4

Classification of the motivations for brick-and-mortar store selection

Domain / motivation	%	Illustrative arguments	Type of motivation
Accessibility	4.63	"Opening hours, ease of access," "ease of parking," "extended opening hours," "lack of time," "faster."	Utilitarian
Personal attention	14.81	"The merchant is nicer," "you are treated better" and "they serve me better," "the relationship is more personal," "friendlier attention," "more personalized attention," "they know you," "you know the merchant," "I've known him forever," "closer attention," "I talk to the merchants," "trust in the lifelong merchant," "there is less stress and more personalized attention," "it is more pleasant, they know you, they give you advice," "I like that they serve and assist me" and "they give me information."	Hedonic / utilitarian
Spatial convenience	26.39	"It is more convenient for me," "it is close by," "I can walk there," "the shopping centers are far away from me," "everything is in the same place," "different stores in the same place, you don't have to move," "several stores together, you don't have to move."	Utilitarian
Entertainment	1.39	"I like to walk around and see things," "it is more pleasant," "it is more fun to go from store to store," and "it is more entertaining to shop in the city."	Hedonic (positive)
Commercial offer	38.43	"Greater variety of stores," "there are more stores," "greater variety of products" and "there are more brands," "large purchases," "monthly shopping," "I find everything" and "there are more things in the shopping center than in the neighborhood," "there are more clothes," "there is more to choose from."	Utilitarian / hedonic
Price	9.26	"It's cheaper," "sales," "variety of prices," "it's a better deal," "better prices."	Utilitarian
Supportiveness	3.70	"We have to help small businessmen," "I prefer to help traditional stores," "I like to activate movement in the city," and "the profits stay in the neighborhood."	Hedonic / ethical
Negative attitude towards SC	1.39	"I don't like department stores," "large shopping centers daze me" and "shopping centers overwhelm me."	Hedonic (negative)

Below are the motivations that were identified, taking into account the preference of the interviewee for the UC, SC or both (see Table 5). In the UC, the following motivations were given by the interviewees, in order of importance:

1. Personal attention (43.26%), which is related to:

- Friendly, courteous attention: expressions were recorded such as "the merchant is nicer" and "you are treated better."
- Advice: for example, "they give me information."
- Personal relationship understood as:
 - A relationship in the strictest sense: "the relationship is more personal" and "closer attention."
 - Previous knowledge: "they know you" and "you know the merchant."
 - Attention and confidence: for example, "there is less stress and more personalized attention" and "it is more pleasant, they give you advice."
- Service attitude, "I like that they serve me and assist me."

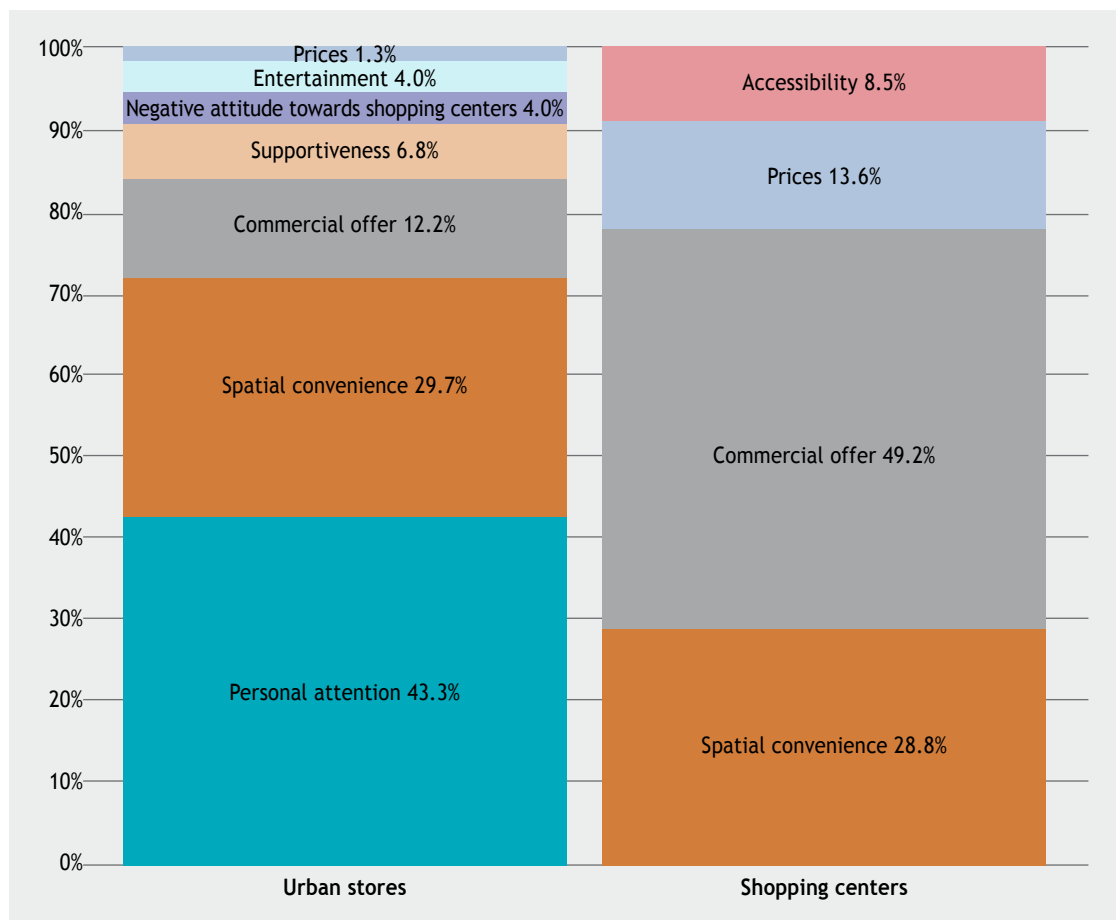
Shopping centers are perceived as being more stimulating because there are more things to see (shopping as an adventure)

Within this domain, utilitarian and hedonic motivations are observed to be basically complementary and interrelated to one another (Babin et al., 1994; Scarpi, 2006; Kang & Park-Poaps, 2010). Consumers look for both types of benefits simultaneously.

2. **Spatial convenience** (29.69%): expressions like “it’s more convenient for me” or “I can walk there” show the utilitarian nature of this category.
3. **Commercial offer** (12.16%): the idea of “fresher products” is associated with traditional food stores; supermarkets belonging to the large chains like Mercadona and Simply (the Auchan Group) that have arisen in the city center are also mentioned. Furthermore, and for non-food products, it is argued that there is “a greater variety of stores” and “more brands.” All the comments show essentially utilitarian motivations, while in non-food shopping, hedonic motivations are also recorded.
4. **Supportiveness** (6.79%): expressions were recorded such as “I prefer to help traditional stores” and “it shows greater solidarity” that reflect in a certain way ethical motivations offered primarily by young people and that support the previous literature (Cowe & Williams, 2000).

Table 5

Distribution of the main motivations for brick-and-mortar store preference



Ethical consumers prefer to put their money where their morals are

5. **Entertainment** (4.05%): “it is more fun to go from store to store” and “it is more entertaining to shop in the city” are some of the hedonic motivations. Among them is the idea of shopping as an “adventure” (Arnold & Reynolds, 2003).
6. **Negative attitude towards shopping centers** (4.05%): “large shopping centers daze me.” The motivations are hedonic in this case too, as they are negative emotions that explain motivations for avoidance.

In the SC, the following motivations were given by the interviewees, in order of importance:

1. **Commercial offer** (49.15%): expressions like “large purchases” and “monthly shopping” are utilitarian motivations. Another key idea appears, which is the vast offering, indicated by expressions like “there is greater variety of products,” “more clothes” and “there is more to choose from.” The arguments reflected in this category for the SC are very similar to those that appear in the UC, in other words, they are essentially utilitarian. However, there are hedonic indications derived from the gratification that results from the capacity to choose from a larger set.
2. **Spatial convenience** (28.81%): shopping centers are understood as a place with “different stores in the same place; you don’t have to move,” which is associated with a utilitarian meaning.
3. **Price** (13.56%) is associated with expressions like “it’s cheaper” or the importance of “sales,” generally in connection with a vast offering. These arguments can respond to more utilitarian motivations, although the quest for sales and/or the best price may respond to hedonic motivations (value shopping, as described by Arnold and Reynolds, 2003).
4. **Accessibility** (8.56%) understood as “opening hours, ease of access,” “ease of parking,” along with “lack of time” are utilitarian motivations.

Finally, there are shoppers without a clear preference, who shop at both the UC and the SC. In this case, the following motivations were observed:

1. **Commercial offer** (80.00%):
 - Shoppers who want to see everything, “I look for variety”, and visit both SC and UC.
 - These shoppers divide their purchases according to product categories:
 - In SC, large purchases of large consumption items (“large purchases, food and cleaning products”) and clothes and shoes.
 - In the UC, daily purchases of perishable products (“fruits and vegetables”) and/or more selective purchases.
2. **Those who are looking for good prices and sales** (15.00%): “I always look for sales” and “I shop wherever it’s the cheapest.”
3. **Those who are looking for convenience** (5.00%): organize their purchases according to what suits them at the time.

The behavior of this group follows more utilitarian than hedonic motivations. Among the hedonic motivations, the *value shopping* and *idea shopping* by Arnold and Reynolds (2003) were identified again.

Urban stores are preferred by older people who value the personal attention

Below is a logit binomial model analyzing the relationship between the dichotomous dependent variable preference for UC or SC and the independent variables age, gender and the eight domains related to the motivations for selection.

Table 6
Logit model of UC/SC selection

	Beta	Wald	Sig.	Exp. (B)
Age		11.618	0.003	
Age (under 25)	-1.719	11.170	0.001	0.179
Age (26-65)	-1.081	5.161	0.023	0.339
Personal attention	3.184	9.110	0.003	24.141
Commercial offer	-1.929	17.610	0.000	0.145
Price	-2.517	9.363	0.002	0.081
Constant	0.978	5.816	0.016	2.660
Goodness of fit:	Nagelkerke Pseudo R ² = 51.1% Hosmer and Lemeshow's chi ² test = 4.506 (sig = 0.609) Percent correctly classified = 81.0%			

The results show that the goodness of fit is adequate: a high Nagelkerke pseudo R² value of 51.1% is obtained (see Table 6). Hosmer and Lemeshow's chi square goodness of fit test shows that there are no differences between the observed values and those predicted based on the regression model. Furthermore, 81% of the cases are correctly classified.

It is observed that persons with the greatest probability of going to the UC are the oldest interviewees (over age 64), who are seeking personal attention and are not overly concerned about the commercial offer or price. Just the opposite, those with the greatest probability of going to the SC are the youngest interviewees (under age 25) and those who are 26-65 years of age; their main motivation is a vast commercial offer at a good price.

5.2. Age matters: an analysis of the different motivations by age

In light of the previous results, the motivations are analyzed, taking into account age (see Table 7).

Young people prefer the SC (78.1%) for two fundamental reasons: its commercial offer (59.65%) and spatial convenience (31.58%). In terms of the first motivation, they use expressions related to variety, such as "there are more products or brands to choose from" and "variety of clothes and shoes." The utilitarian and hedonic motivations are intertwined: the better offer provides greater possibilities of finding what you want (utilitarian) and also allows you to "get ideas" (hedonic, according to Arnold and Reynolds, 2003). Spatial convenience is also important to young people (31.58%), since they understand the SC as a place where all the stores are grouped together (utilitarian motivations). Regarding the UC, young people highlight supportive motivations (hedonic), spatial convenience and commercial offer (utilitarian) and also cite entertainment (hedonic).

Table 7

Motivations for brick-and-mortar selection by age

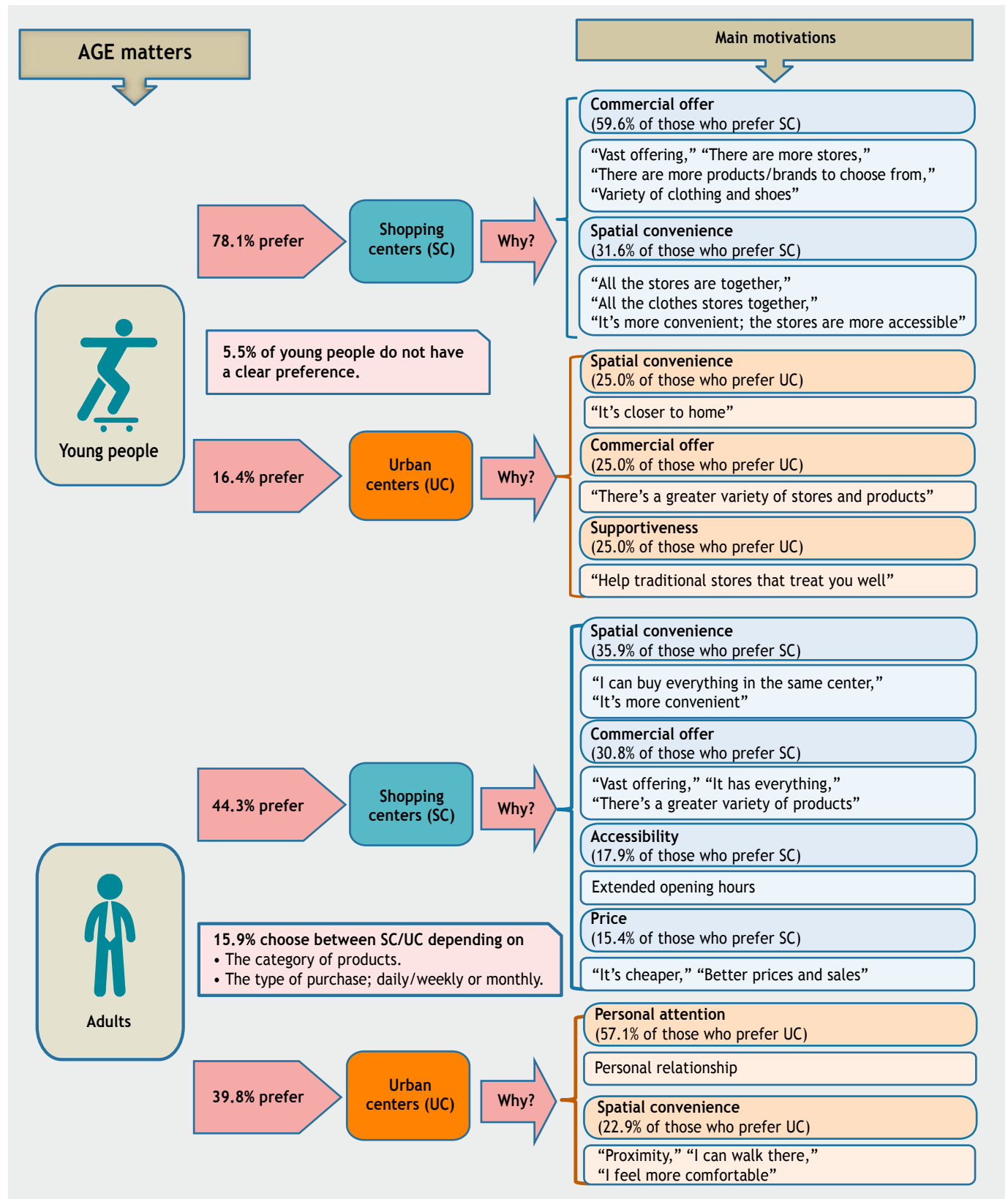
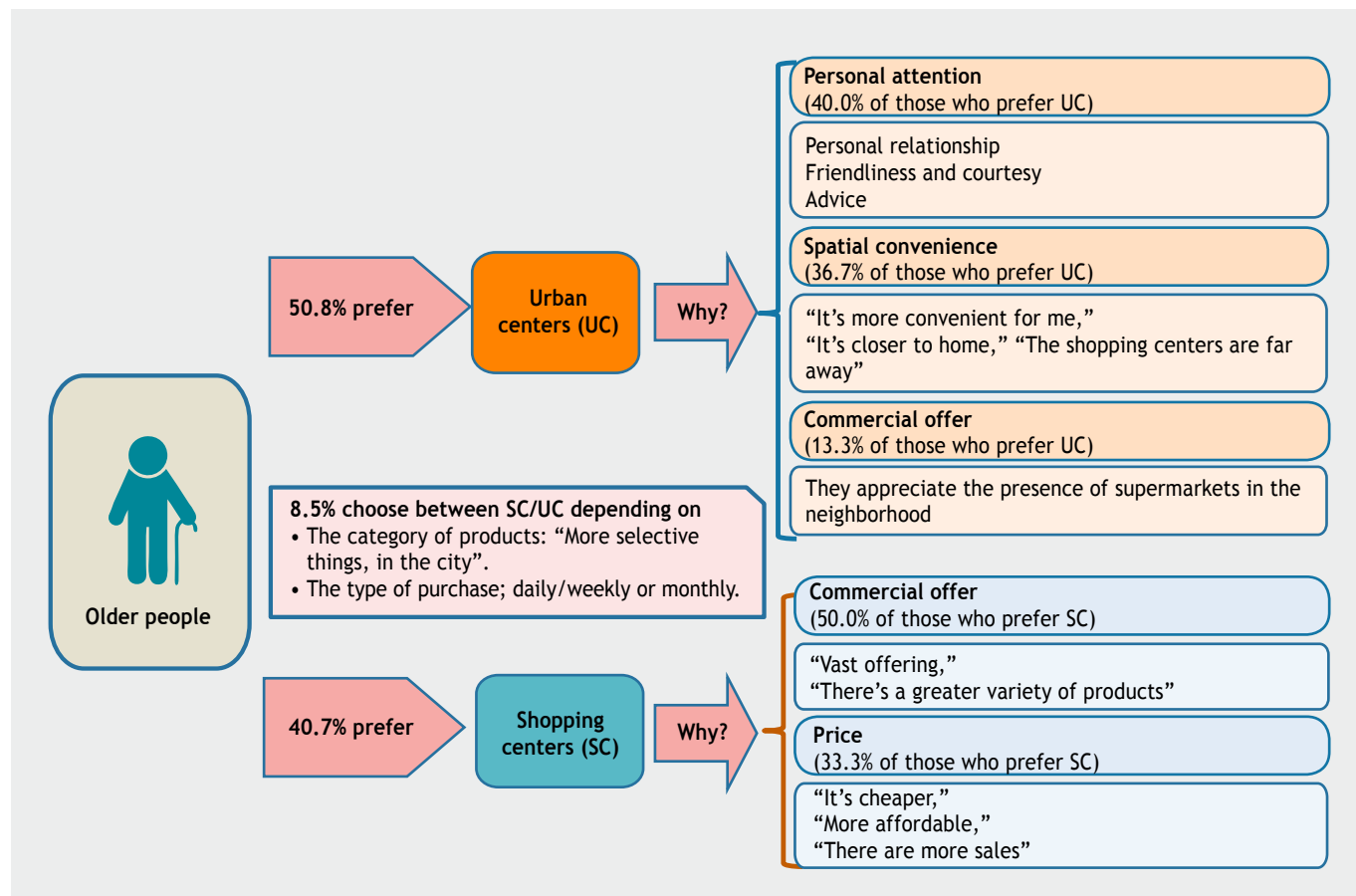


Table 7 (continued)

Motivations for brick-and-mortar selection by age

Adults especially value the spatial convenience of the SC, verbalizing utilitarian expressions like "you find everything you are looking for in a small space" and they add the aspect of "convenience." They later mention the commercial offer, which they express as follows, in order of importance: "it has everything" and "large purchases," with a primarily utilitarian focus. This group primarily appreciates the "personal relationship" of the UC, as part of the personal attention.

Finally, older people, unlike the previous groups, prefer the stores in the UC and highlight the personal attention (relationship, advice and friendliness of the merchant). Those that prefer the SC point to the commercial offer, valuing its variety; they also give importance to price: "it's cheaper" (utilitarian).

6. Conclusions and implications for management

The economic crisis triggered a drop in consumption and the closure of many stores in both the UC and SC. Most of the establishments in the UC of European cities are small independent businesses, without research departments. So it is interesting for their problems to be analyzed by universities, providing solutions aimed at attracting and maintaining customers. Thus the research question arises that intends to find out whether retail

**Shoppers
can shop more
efficiently
in stores in
the city center
if they have
an online
presence**

businesses with brick-and-mortar stores have any competitive advantages. The answer is based on the study of the motivations that explain the choice of a brick-and-mortar store.

The literature offers a wide variety of focuses on shopping motivations, with the utilitarian/hedonic classification being one of the ones most commonly used at the present time (for example, Kang & Park-Poaps, 2010; Arnold & Reynolds, 2012; Seo, Yoon & Vangelova, 2015; Chaparro-Peláez, Agudo-Peregrina & Pascual-Miguel, 2016). The contribution this work makes is to identify those first motivations that underlie the behaviors and cause a shopper to opt for a brick-and-mortar store in the UC or SC. In this sense, this study contributes the richness of the nuances obtained by directly asking consumers about their motivations, as opposed to presenting them with scales to evaluate the aspects being investigated. It is shown that similar expressions can be used to identify very different reasons, which is why it is recommended to add open-ended questions to research on consumer behavior.

The results show that SC continue to elicit the movement of customers to the outskirts of the cities. In fact, both young people and adults prefer the brick-and-mortar stores of SC for two basic reasons: the commercial offer and spatial convenience. Both hedonic and utilitarian motivations are identified in them. Of the 6 groups of hedonic motivations identified by Arnold and Reynolds (2003), brick-and-mortar store shoppers currently mention two: shopping at the SC is more stimulating, because there are more things to see (shopping as an adventure) and that makes it possible to collect more information on products and trends (shopping to get ideas). With spatial convenience, shoppers are supporting utilitarian motivations; the SC lets them be more efficient in their shopping tasks.

In the region of the study, like in most medium-sized European cities, there are more stores in the UC than in the SC. However, it is surprising to note that customers perceive a greater commercial offer in the SC, and as a result, they feel that they have a greater capacity for selection there. The implication for the management of UC is clear: work needs to be done on both online communication (for example, social networks and websites) and offline communication (for example, outdoor and indoor merchandising) so that consumers know about the products they offer. This conclusion is in line with the works by Neslin et al. (2006), Verhoef et al. (2007) and Bodur, Klein and Aroa (2015), which indicate the importance of the online channel for brick-and-mortar stores. Shoppers can shop more efficiently at stores in the UC if they have an online presence that communicates their products and brands in an attractive manner. In line with the above, the UC must also develop innovative commercial proposals for products and attractive displays.

As shown by Medrano et al. (2016), this work reveals that the strong suit of the UC is personal attention, since (1) it is the main reason why adults and older people shop in the UC and (2) no one who has a preference for the SC mentioned this motivation to explain their choice. Therefore, personal attention can be a competitive advantage for stores located in the UC to counteract the strong points of the SC, which are offer and prices.

Delving deeper into the arguments related to personal attention and in line with the findings of Haas and Kenning (2014), this work also reveals four factors of utilitarian and hedonic motivations that said authors introduce in their model to explain the reasons why shoppers consult sales assistants:

- Two are situational: (1) uncertainty about the purchase (utilitarian) (for example, they give me information or advice) and (2) the positive attitude on behalf of shoppers towards sales assistants (hedonic) (you are treated better or the merchant is nicer).

Urban stores must also develop innovative proposals for products and attractive displays

- Two are individual: (3) an orientation towards efficiency (utilitarian) (for example, I like them to serve and assist me) and (4) shopping enjoyment (hedonic) (it is more pleasant).

While the uncertainty and the perceived risk entailed by shopping is a motivator for seeking out personal attention, there is evidence of the important role played by the affective processes, such as a positive attitude towards the sales assistants. Therefore, the results of this work also support the research on shopping behavior done by Strack and Deutsch (2004), Arnold and Reynolds (2012) and Haas and Kenning (2014).

As a result, UC managers are recommended to foster personal attention through the professionalization of the sales assistants. The important investment made in sales assistants by stores as famous as Abercrombie is a significant example of this strategy. When someone decides to ask a question, generally speaking, they have the intention to buy. Friendliness, relational sales techniques and the proper use of personal communication can improve customer relations and the customer's shopping experience. Young people give no importance to personal attention and there are also adults who prefer self-service. In light of this reality, sales assistants must know how to read the non-verbal language of shoppers in order to transmit that they are available to help, but without annoying them.

Spatial convenience appears as an important utilitarian motivation for both SC, as already mentioned, and the UC. However, here it takes on a different meaning:

- For the UC, it means spatial proximity, and is highly valued by older persons who do not drive as much.
- For SC, it means finding everything the customer needs without having to leave the center. This motivation is important for young people and adults. Time is a scarce resource.

In an effort to energize brick-and-mortar stores, it is recommended to conduct communications campaigns aimed at pointing out the benefits of going for a walk and enjoying the variety of stores as opposed to the physical inactivity associated with Internet shopping.

SC managers are recommended to work on the idea of excursions to make large purchases and to strengthen their forte in terms of the range of products they offer. Their commercial communications campaigns should stress the advantages of their spatial convenience (everything in the same place) and accessibility (opening hours and parking).

It has been demonstrated that age matters. It is discovered that young people value, above all, the range of products offered at the SC and sometimes appear to be supportive (hedonic) of the UC. These results make it possible to recommend to brick-and-mortar stores that they hire young sales assistants and develop online distribution and communications channels that complement the offline alternative.

It might seem surprising that entertainment does not appear as a motivation when choosing shopping centers, when the works by Avello and García de Madariaga (2010) have concluded that this aspect is important to young people. The explanation is that the leisure offering at the SC in the study region is limited. The numerous bars, pubs, restaurants and other entertainment venues are located on the streets of the city center.

The present work contributes the fundamental conclusion that the stores in the SC and UC can coexist, each developing their own strengths. Both provide interesting benefits for today's

Stores in the city center can attract customers by conducting campaigns highlighting the benefits of going for a walk

consumers who, in certain situations, prefer brick-and-mortar stores and value the offline shopping experience.

6.1. Limitations and future lines of research

Although the results are considered to represent important progress, it is not known whether this is a peculiarity of stores in the study region or if they can be extrapolated. In spite of the fact that the number of retail establishments has continued to decrease in Spain since 2013, in La Rioja, it has remained practically constant. Therefore, it is considered appropriate to replicate the study in other Spanish cities and in other countries like the United States, India or Germany with different cultures.

In this work, all the stores in the study region have been considered as a whole; however, it would be interesting to investigate and compare by types of businesses, since there may be differences between the different categories and brands.

7. Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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The impact of robotics on the tourism sector: the case of Barcelona

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Abstract

This research analyzes the influence of robotics on tourism. It is an innovative phenomenon, but one that is expected to be present in most tourism and communication activities. Robotics is beginning to produce results in terms of jobs related to tourism. Robots are incorporated in all types of establishments, especially in hotels, restaurants and museums. The phenomenon is analyzed through a quantitative (implementing data from automatic check-in and check-out machines in Barcelona hotels) and qualitative (in-depth interviews) methodology. The improvements and drawbacks that they can represent are observed, as well as their repercussion on the tourism work environment. It is concluded that the inclusion of robotics in tourism is still in the development phase, but it implies personnel savings and more personalized and interactive attention for the end user. The machines are used more often in hostels and tourist apartments than in hotels.

Key words

robotics, innovation, interactivity, Internet, work, tourism, communication.

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The article studies the presence of automatic check-in and check-out machines in the HORECA sector

1. Introduction

The trend towards automation and the inclusion of technology solutions is fostering changes in different sectors, including service sectors, such as tourism. Robotics is beginning to be introduced in this sector, which we will analyze through the case of Barcelona.

The aim of this research is to analyze the impact of robotics on tourism and to observe the advantages and drawbacks that this phenomenon may promote or mitigate.

Structurally speaking, robotics is presented with regard to innovation and tourism, studying the specific case of Barcelona from a quantitative (the implementation of automatic *check-in* and *check-out* machines in hostels, hotels and apartments in Barcelona) and qualitative (through in-depth interviews with sector specialists) perspective. Finally, reflections are offered on the interest in these innovations in the tourism sector. Likewise, perspectives are presented for future research on this area of study.

2. Theoretical framework

There is a close relationship between tourism and technology, although it has accelerated in recent years as a result of the emergence of the Broad Band and Internet Society (Fondevila Gascón, 2010 and 2013a). Innovation is relevant to development in general and to tourism in particular, since it is considered an essential ingredient for competitive economic development in a dynamic, borderless environment like today (Herrera González & Gutiérrez, 2011; Caro, Luque & Zayas, 2015).

In the case of tourism, tourists can get information and reserve trips from their own home with a computer or any other terminal they want, such as a smartphone (Fondevila Gascón, Carreras Alcalde, Seebach & Pesqueira Zamora, 2015; Fondevila Gascón, Berbel, Muñoz González, Mir Bernal & Puiggròs Román, 2015; Fondevila Gascón, Berbel, Muñoz González, Mir Bernal, Puiggròs Román, Sierra Sánchez, Tena León, Santana López, Rom Rodríguez & Ordeix Rigo, 2016).

The tourism market generates an enormous offering, which stimulates innovation. For a product to take hold and capture the attention of a future customer, it must be different and innovative. This means that it will not depend on economic flows or temporary popularity, since it will have obtained a solid market, thanks to its own characteristics. The purpose of a product is to create a need, and thanks to innovation, unique, irreplaceable needs can be created (Valls, 2013).

When it comes to introducing an innovation, tourism is different from industrial products. It requires specific solutions that are used to increase the value of the products, expand their market or simply reduce costs. The tourism industry has a number of unique features (Weiermair, 2004). It produces and sells packages of products as opposed to individual, tangible products themselves. The lack of a need for warehousing, i.e., the simultaneousness of production and consumption, active customer participation, large capital assets that are involved in tourism marketing (such as intermediary companies, airlines, hotel chains or car rental companies) and the large number of staff members who interact in the different stages of production, intermediation, distribution and consumption are some clear differences.

On the other hand, we can classify the types of innovation based on those set out in the Oslo Manual. The definition of innovation in this manual is based on two criteria: changes that

Robots in the tourism sector attract the curiosity of people and stimulate communication

introduce significant modifications and innovations for the company or sector. A change can constitute an innovation for one company, but not for another. Innovations are organized according to this taxonomy: product or service, organizational, marketing, process, institutional and market (OCDE & EUROSTAT, 2006).

2.1. Product or service innovation

The innovation of a product or service consists of introducing new or significantly improved products or services in the market. This can include variations in the technical specifications, components, materials, software, user interface or other functional characteristics (Pino, 2012).

Thus, innovations represent the introduction of a new product or service in the tourism market, i.e., elements never before seen or novelties at a destination or in a company. The reaction of customers is what determines whether this new tourism element will be successful or not.

Significant changes in the characteristics of goods or services or the use for which they are intended in a tourism market are other unique features. Minor changes, changes in routine procedures and regular seasonal changes are not considered to be product innovations. Likewise, the reselling of products purchased from other companies does not constitute an innovation. On the other hand, what are considered product innovations are new services that represent improvements and amenities for customers, such as Internet services and the replacement of material elements with others that have better characteristics or simply with others that represent a reduction in energy costs (OCDE & EUROSTAT, 2006).

Navarro (2010) stresses that the product must provide value for both the customer and the company itself. For the results to be positive, product development must be well-planned and structured, permitting the control of future threats. It will thus enable the company developing it to increase sales, reach the market before its competitors, create products with better quality and value, keep costs down and position itself favorably in the market.

On the other hand, if a new product is not developed effectively, it will pose a serious threat to the company, since it can mean the end of its existence, due to the resulting repercussions. It is therefore very important to have a good structuring, systematization, formalization and communication throughout the organization to ensure the success of any organization seeking to be innovative. In tourism, innovations can refer to the design of dishes in a restaurant or the furnishings and decorative elements in any tourism service that create a different visual impact. The goal is to capture the attention and interest of the customer (Campo & Yagüe, 2011). Co-development has emerged as a method to create new products or services. In this phenomenon, two independent organizations join or collaborate with each other to develop a new product (Munuera Alemán & González-Adalid, 2007).

2.2. Organizational and process innovations

Organizational innovation is the application of a new organizational method in business management, the organization of job positions or external relations (Pino, 2012). An organizational innovation means new organizational methods, either internal or external, in a tourism company; this means changes in habits or routines, the workplace or external relations (ITH, 2007).

The most common changes in habits or business practices are the creation of a new database, using the most important current data from the company (Fondevila Gascón, 2013b), the integration of new monitored systems, a quality management system or the introduction of

It is observed that robotic applications are still in the developmental phase in tourism lodging establishments

employee training programs. The virtual transformation of travel agencies is one example of this change.

The new ways of organizing the workplace can mean a decentralization of the company's priorities and employee responsibilities, as well as the creation of specialized work teams or the integration of a program based on identifying the company's problems in order to determine their causes, which results in the creation of a new department and a new way of acting throughout the organization.

Innovations in external relations are based on reviewing and changing the rules for the control of suppliers and subcontractors, the search for investors and innovation collaborating on research and with universities (Camisón & Puig, 2014).

Research has shown the important role of technological innovation in the tourism sector. A positive effect of the concept of technological innovation is observed as applied to business performance. It is a decisive factor for adapting to new technologies. When analyzing whether the variation in results is associated with the use and adoption of technology (in the sense of both information technology and human resources) in rural tourism establishments in Galicia, no relationship was detected between the use of ICTs and the results of the company. However, a connection was observed between the business results and the characteristics of the human resources in a company. The combination of the impact of the use of technology and human resources does not minimize the results of the company (Sinde Cantorna, Diéguez Castrillón & Gueimonde Canto, 2009).

In the case of tourism, process innovations are based on introducing new production or service provision methods. In particular, all this implies changes in techniques, equipment and computer programs. These may thus be changes of both a tangible and intangible (technical) nature.

Nowadays, the new technologies are taking top position as the element of innovation that must be included in a tourism company. For example, ski lodges are including more and more elements of technology (ski lifts) and airports use increasingly more innovative methods for transferring luggage, goods and information, as well as for security purposes (Fundación EOI, 2015).

The introduction of platforms that improve service processes entails new automatic check-in methods that save time and money for both business owners and customers. In addition, more and more research and innovation are being directed towards the use of robotics in the tourism market. One experimental study on the main factors with a repercussion on product, process and marketing innovations in tourism companies in Pucón (Chile) showed the negative weight of websites on product innovation. On the other hand, process innovation has a positive influence, thanks to entrepreneurs who make risky decisions in their companies, Internet connections and the use of information and communications technologies (ICTs). Likewise, the use of ICTs and the participation in training courses boost innovation in marketing (Torres & De la Fuente, 2011).

2.3. Robotics and tourism: a recent relationship

In 1979, the Robotics Institute of America defined a robot as a reprogrammable and multi-functional manipulator that is designed to transfer specific materials, parts, tools or devices through a series of programmed movements in order to perform a variety of tasks (Raol & Gopal, 2013). Robotics is defined as a field of science and technology that deals with

The application of robotics is used more as a system to reduce costs than as an element of innovation

mechanical problems related to the analysis, design, control, measurement, application and maintenance of robots (Morecki & Knapczyk, 1999).

Geographically, robotics is concentrated in Europe, North America and Asia (Tobe, 2018). According to the International Federation of Robotics, in 2014 the sales of robots increased by 29%, in particular, impulsed by the automotive sector and the electrical and electronics industry. Asia (including Australia and New Zealand) led the market with 139,300 industrial robots sold in 2014, 41% more than in 2013. Five markets represent 70% of the total volume of sales in 2014: China, Japan, the United States, the Republic of Korea and Germany.

Europe accounts for 32% of the market worldwide. Industrial robotics occupies a third of the market, while in the professional service robot market, European manufacturers produce 63% of the non-military robots. The European position in the service robots market represents a market share of 14% (SPARC Robotics, 2018). The SPARC initiative will contribute €2.8 billion to the sector. This public-private association between the European Commission, industry and academia is intended to facilitate growth of and strengthen the industry and provide value to robots, as well as promote research through production.

A robot is an autonomous system that exists in a physical environment, which can sense it and take action to achieve certain objectives (Mataric, 2007). Robotics studies robots, their autonomy and their purpose of detection and action in the physical world. The ISO standard, defined by the International Federation of Robotics (IFR), distinguishes between two types of robotics: industrial and service.

The definition of industrial robotics is found in ISO 8373; it states: “An automatically controlled, reprogrammable, multipurpose manipulator programmable on three or more axes, which may be either fixed in place or mobile for use in industrial automation applications” (AER-ATP, 2015). In 1960, George Devol gave the first demonstration of a device that combined the articulated mechanism of a remotely-operated system with the movement of each axis, based on the numeric control of a machine tool. This robot was capable of performing simple tasks through the programming method known as learning and was ideal for performing tasks involving positioning and transport. The first commercial industrial robot, developed by Engelberger, was marketed by Unimate in 1962. The first applications in the U.S. industry were initiated in 1967; in Japan, in 1968 and in Europe, in 1970 (Somolinos, 2002). Social robotics, artificial intelligence and smart services, virtual reality, 3D printing, the Internet of things and mobile and wearable technologies all form part of the Broadband Society. The profiles with the greatest risk of being replaced by robots are administrative, office and production positions, and nearly 50% of jobs are subject to being automated.

On the other hand, the ISO TC 184/SC2 Committee defines Service Robotics as “any type of robot that is not industrial.” The IFR also defines service robots as any “robot that operates partially or completely autonomously in the service of the well-being of humans and equipment, excluding manufacturing operations” (AER-ATP, 2015).

The history of robotics is linked to the construction of artifacts, which attempted to materialize the human desire to create beings in their likeness and that would free them from work. There are innovations in sectors that have led the evolution of robotics. One of them is the automotive sector (Rey, 2007). In fact, the mass production of automobiles in the early 20th century gave way to manufacturing and modular assembly, following the canons of vehicle flexibility. The automotive industry is characterized by its efforts towards innovation, which have led to the development of new models and features. One of the most frequently analyzed

Robotics in tourism is a simple adaptation of traditional and industrial robotics

indicators to optimize innovation in automobiles is that of electricity (Martín Hernández & Pérez Belló, 2004).

Innovation and the inclusion of robotics are not always associated with the capex (*capital expenditures*) sectors. On occasion, they have been used in more recreational environments, such as in the case of chess (Fernández & Pallarés, 2009).

Automation is found in all types of sectors. One of them is the health industry, with a strong technological impact that provides very noticeable benefits (Ayza, 2010). Another susceptible sector is the food industry, which directly impacts the tourism activity (Roca, 2006).

Automation has an impact on the tertiary sector, focused on customer service and subject to incorporating technology to improve service, as in highway systems, movie rentals or car washes (Diz Comesaña & Urgal González, 2012).

In tourism, robotization is beginning with what are apparently the simplest tasks, in spite of the fact that quality in the sector stems above all from the human factor as a factor of competitiveness and quality (Brotons Martínez, 2012).

The term robot, which means worker or paid slave in Czech, was adapted to refer to humans who perform repetitive, meaningless work, while science fiction described automatic intelligent machines. In the 1960s, engineers started to apply the term robot to re-programmable industrial machines that could perform a variety of independent repetitive tasks typical of an operator. In any case, robots were intended to replace humans in laborious tasks (Capek, 1996; Nocks, 2007).

The tourism work environment is suitable for the introduction of robots, in terms of accessibility and providing a unique experience for each tourist, with guided tours using GPS devices and *geocatching*. Museums can be accessible, such as the Australia National Museum in Canberra, which offers telepresence for those who cannot visit in person, and also speaks multiple languages. The idea of using robots for virtual tours can be extended beyond museums, using them for the virtual promotion of tourism destinations (Tourism Embassy, 2014). Translation services improve the experience of tourists and can add extra income for local tourism. Robots can even help with multimedia resources. In any case, the main impact is on the work availability generated by robotization, with options 24x7.

In terms of the specific sales of robots destined for tourism (professional services robots) and companion, assistant and humanoid robots, around 8,100 were sold in 2018. Japanese (especially Honda, Kawada and Toyota) and American, Korean and European companies are developing tourism assistant robots that go beyond mere toys and entertainment (IFR Statistical Department, 2015).

Service robots have recently appeared with applications in the tourism sector, such as room service in hotels and waiters. According to Travelzoo (2016), 80% of tourists expect robots (in an active sense) to be important in their lives in 2020, and 75% believe that their life will improve. Almost two-thirds of those surveyed feel comfortable with the robots that are used in the travel industry. The Germans and French surveyed were the most reluctant to adopt robots, while Chinese and Brazilians were the most positive about how they could improve vacations or travel in general. The main advantages of robotics are related to efficiency in general, data retention and memory. More than three quarters of those surveyed think that robots would be better than humans in data management (81%) and speaking languages (79%), while 76% think that robots have a better memory.

Research shows that robotics in this sector allows repetitive, dangerous and low-creativity jobs to be replaced

3. Methodology

The methodology used in this exploratory research, given the innovative characteristics of the study subject, is both quantitative and qualitative, and thus we opted for triangulation.

Thus, from a quantitative perspective, data are obtained on the implementation of automatic check-in and check-out machines in Barcelona establishments ($n = 105$), with 35 hostels, 35 hotels and 35 apartments. The availability of these data is limited, due to a lack of a representative sample of hotels with some type of robotized application. For this reason, we have opted to conduct a small study on the presence of automated machines in the receptions of different tourism lodging establishments in Barcelona. They are not robots in the strictest sense of the word, but they are a type of innovation that resembles them, albeit in a simpler form. In a reception area, both an automatic check-in and check-out machine and a robot are intended to innovate and facilitate the work for humans.

Qualitatively, three in-depth interviews are carried out, based on which the phenomenon of introducing robots in the tourism environment is analyzed, observing the improvements and disadvantages they can represent, as well as the repercussion in the tourism work environment.

An in-depth interview is a technique based on a designed and organized dialog in which both the interviewer and interviewee take part. The topics of conversation during the interview have been previously decided and organized by the interviewer. On the other hand, the interviewee provides information during the conversation about experiences, beliefs and desires with regard to the proposed topics. Therefore, an in-depth interview implies a conversation with purposes aimed at the research objectives.

In social research, there are three types of interviews: structured, semi-structured or focused and unstructured (Fondevila Gascón & Del Olmo Arriaga, 2013). To conduct this research, we have used three structured interviews with specialists in robotics Mercè Gamell (research analyst at the Nelmia Robotics company), Víctor Martín (general manager and founding partner of Macco Robotics and one of the creators of Macco, the Barman robot) and Francesc Cortés (industrial engineer with experience in several companies in the field of industrial automation). Topics addressed included the type of use of robots and the improvements that they contribute or can contribute to the tourism sector, trends and advice for the future, co-existence between the work force and machines and possible drawbacks.

4. Results

4.1. Quantitative results

The analysis considered the presence of automatic check-in and check-out machines in hotels, hostels and apartments in Barcelona. They were asked for information during the first quarter of 2018 on the reception hours and the use of automatic check-in and check-out machines.

During the information search process, it was observed that the best-known hotel chains and luxury hotels were precisely the ones that did not make use of this technology. It is inferred that automatic machines are used by the company to save on economic resources and personnel.

In some hotels, robots are used as support to streamline customer service and prevent gridlock when groups are checking in or at times of intense occupancy. Some establishments with few rooms or low occupancy rates use the machines because it would not be feasible to hire a receptionist.

The study indicates that the hotels that use these machines belong to more modest categories

In the Can Parera hotel, for example, the only way to enter is through an automatic machine, since there is no receptionist at all, even though it is a family hotel with only a few rooms. In the case of the Travelodge hotel in the Poblenou district, the machine makes it possible to streamline customer service and prevent lines when groups are checking in or at times of high occupancy, since this is a large-capacity hotel (250 rooms).

In the case of the Erik Vokel apartments, the machines perform the same function as a receptionist: they identify the reservation or show the available rooms with their prices, collect passport or national ID card information, photograph the guest for greater security, charge the amount for the stay and deliver the key to the guest. The function of the machines can include more services and options, depending on the accommodations. Robots act independently, securely and effectively. In the case of any incident, the establishments make a 24-hour hotline available to the customers.

The data on the establishments that use automatic registration machines reflect the trajectory of the sector (Table 1). Even though its consideration of robots is generous, they reflect a trend towards consideration, led by apartments (71.42%), followed by hostels (65.71%) and hotels (40%).

Table 1

Use of robots or automatic registration machines

Type of establishment	Percent of inclusion of robots or automatic check-in machines
Hostels	65.71%
Hotels	40%
Apartments	71.42%

Source: author's own work.

In terms of the presence of receptionists, there are many hostels (the Ding Dong chain, for example) that offer customer service from 7:30 am to 3:30 pm and from 11:00 pm to 7:00 am at the main office, using the machines as an element of support. In the case of the Río de Castro hostel, there is no reception service.

In terms of hotels, the use of automatic machines is not generalized (they are present in less than half), particularly in higher-end hotels. Those most likely to have this service are not located in the center of Barcelona and are one- or two-star (low-end) establishments. For example, the Travelodge Barcelona Poblenou hotel offers both an automatic and a staff-operated registration service 24 hours a day. It is a very large hotel (250 rooms), so the machine is used as a means of support to help prevent long lines. In the case of the Can Parera hotel, there is no reception service and lodging is only permitted with prior (on-line) reservation.

This type of machine proves to be very useful for apartments in Barcelona, both for companies that offer a large number of apartments (such as Erik Vokel Gran Via suites, for example) and for those that only offer a few (such as APBCN Eixample Center). Apartment staff confirm that the automatic check-in and check-out machines are very well accepted by customers.

Robotization facilitates the work of staff members, since in the case of having apartments spread out around the city, they can assist customers without having to travel and without

One of the conclusions is that the expansion of automated machines and robots in the sector is slow

having to hire a large staff. The machines are used in most apartments as the only method of registration, although they all have a concierge/reception center in one of their buildings in the event of any incidents. In the case of the Erik Vokel apartments, the machines are only used when there is no employee present at the reception desk, i.e., from 6:00 pm to 9:00 am.

In the case of hostels, it is observed that they use this tool as a replacement for an employee during hours with low demand, or directly as the only method of accessing the hostel. The hostels that use this machine do not have a large capacity for guests (12-18 rooms).

4.2. Qualitative results

The in-depth interviews carried out with Mercè Gamell, Víctor Martín and Francesc Cortés shed light on the subject of study analyzed in this research. The combination of perspectives from service and industrial robotics and industrial automation provides value when identifying opportunities and developing innovative strategies with the use of new service robotics. In the case of the waiter robot, the intent was to provide the same agility and quality as a person.

The position of the Spanish robotics sector on the global stage is adequate, particularly in the automotive industry. But in terms of service robotics, it does not hold a leadership position, as it has not been fully developed. Cortés states that “Spain is on the same level as any other European country, and even has some leading companies in this field.”

There have been several improvements in robots for business use. Gamell considers that, for decades, industrial robots have been an essential element for improving the productivity and competitiveness of companies, thanks to price reductions. In the environment of industry 4.0, smart companies are using machines, robots and people (through wearable and other devices) connected via the cloud to improve the efficiency of processes. For Martín, social robotics will be used in the hotel sector, since it will provide many advantages, “such as savings in terms of operating costs related to repetitive tasks.” Robotics in tourism will help create new customers, gain customer loyalty and, along the lines of the present research, manage check-ins and check-outs more quickly and efficiently. The productivity and competitiveness of tourism companies will experience a boost, since “robotics has always been involved with replacing repetitive, dangerous and low-creativity tasks.”

With regard to a possible Neo-Luddism, the three interviewees believe that robotics does not mean a loss of job positions, but rather the replacement of tasks. Accordingly, Gamell maintains that any task that can be predictable or mechanical will end up being replaced by a robot; on the other hand, those tasks in which the human factor is essential, that have high levels of creativity or where common sense is required, will be very difficult to replace. Martín states that “people who before were dedicated to tedious tasks have the opportunity to become more customer-oriented; in short, job positions are being transformed.” Cortés argues that whenever a technological change has occurred, some workers end up being replaced or dismissed. If in the short-term dismissals are to be expected, “over the long term there will be no loss of workplaces; there will be changes in occupation and a renewal of tasks.”

The main drawback that a robot represents in the workplace is in terms of safety, although they are all either adapted or protected by cells around them. Traditional robots had never before shared work space with humans. Currently, thanks to collaborative robots and their mobility, they can work together, detecting and avoiding obstacles. Another drawback is the economic facet: the company must ensure that it is a safe robot, and thus it must invest in modifications in the environment to facilitate the work of the robot, invest in new technologies and adapt the workplace.

The trend is that tasks that involve repetition and low levels of creativity will end up being replaced by robots

As advice for those tourism professionals who will irremediably lose their job, it is suggested that the threat must be approached as by any other professional, with confidence, flexibility and the skills needed to face any eventuality and be capable of shaping the future. The key is to be relevant in your functions and to learn constantly. Focusing on creative professions with high levels of technical knowledge will make it possible to avoid the danger of repetitive activities with little value. Providing much more personalized service and dealings with customers will make the difference. The large volume of future job positions will be generated by new business models that have not even been imagined yet, associated with broad areas that are suitable for robotic automation, such as the health, home automation and social automation sectors. Jobs like telephone operators, assistants, secretaries and nurses can be transformed, since a robot can place patients on gurneys or help them climb stairs. It would also be possible to automate judges, thus avoiding prevarications and possible direct or indirect bribes and corruption. In this sense, the figure of the Scientific-Academic Court of Justice has more credibility, using big data and objective data to avoid human prevarication. The jobs that are less susceptible to being replaced by robots are those of teachers, content creators, doctors (in some cases), engineers, architects and other jobs that require human thought and reasoning.

Tourism companies that want to apply robotics to tourism must consider activities that manage a large amount of data, which require physical strength, multilingual capabilities and time savings. As a negative aspect, it is necessary to anticipate the repercussion on employees, who must adapt and renew themselves. In addition, the impersonal relationship involved in working with a robot must be considered, which requires a period of adaptation by humans.

Even though robots have a negative connotation in western culture, in opposition to humans, in eastern cultures (Korea, China and Japan) they have naturally been adopted. The media impact generated by robots causes both acceptance and rejection. The concept of robotics is evolving, as awareness of the benefits that can be obtained increases, particularly in the areas of health and education. Emotional robotics generates greater acceptance. It is precisely a European project that is studying the acceptance of robotics, and in theory, no dysfunction is detected in its acceptance.

With regard to the profile of a person who accepts or rejects robotics, Gamell believes that acceptance is not derived from a personal profile, rather it depends on the task the robot is performing. The least accepted tasks are those that require “humanity,” such as caring for sick or elderly people, although it is pointed out that in these cases, robots can act as assistants. Both Martín and Cortés agree that young people are more likely to accept dealings with robots. Current generations are very used to working in digital environments and using technologies, so “it will seem totally natural to them to interact with a machine or robot.” However, the human touch will never be replaced or equaled.

5. Conclusions

The present research, based on the study of the robotizing presence of automatic check-in and check-out machines in hotels, hostels and apartments in Barcelona and the in-depth interviews that were conducted, allows us to observe that in tourist accommodations, robotics is still in a developmental phase and is used basically as a tool to save money (i.e., employee salaries), as opposed to a way to innovate and capture the attention of customers. These machines are more commonly used in hostels and tourist apartments than in hotels.

It is curious to note that the hotels using these machines belong to modest categories, and we only found two of them. With regard to tourism apartments, all of the businesses analyzed,

It should be stressed that higher-end establishments still opt primarily for human receptionists

except Erik Vokel, use automatic registration machines as a convenience for customers, preventing the need for them to travel to the central office. These companies manage several apartments in the city of Barcelona, and thanks to the automatic machines, they can check in and check out guests directly at the apartment. At Erik Vokel, on the other hand, they only use the machines during those hours when there are no receptionists, which are those with the least demand.

The expansion of automated machines and robots is slow, although they are occasionally used as the only method of registration and entry into some of the accommodations analyzed, which leads us to think that they can replace receptionists (with the detail that some degree of quality is lost in association with the human factor) and they can even be a marketing strategy. It must be considered that if higher-end establishments continue to opt primarily for human receptionists, it is likely that certain nuances of the job are not suitable to be performed by robots, thus affecting customer satisfaction. This is an aspect to analyze in future studies, since it would seem that robots can negatively affect the tourism experience and the generalization of robots would inhibit the spontaneity and authenticity of the tourism experience.

The in-depth interviews reveal that robotics in tourism is a simple adaptation of traditional and industrial robotics, and is a pioneering innovation. The robotics sector in Spain is dynamic. The benefits robots mean for tourism are focused on improved productivity and competitiveness of companies, the competitive advantage of which is innovation. Robotics makes it possible to replace repetitive, dangerous and low-creativity work.

The long-term objective of robotics applied to tourism is interaction with humans and the comprehension of their emotions, as well as the creation of safe robots without any type of risk. The trend is for tasks that involve repetition and little creativity to be performed by robots.

However, robotics will not mean a loss of job positions, rather a substitution of tasks. As occurred on other occasions throughout history and after three industrial revolutions and the arrival of the Broad Band Society, the adaptation process will involve new sources of occupation that require greater creativity and intelligence.

In terms of future lines of research in robotics, a Cambrian explosion is occurring as the result of the convergence of advances in different technologies, of which robots are an integrative element. More autonomous, mobile robots capable of communicating and understanding, which share learning via the cloud and with greater cognitive capacities are the subjects of more and more studies. As development costs become more affordable and it is simpler to access a robot, investments are being made in the development of processes that simulate artificial intelligence, making the interaction between robots and people more seamless and human. The sensitivity of robots enables them to work alongside people, and the growing trend is for robots to understand human emotions.

Regarding the future of robotics in tourism, social robots use cognitive technologies to communicate and relate to people in an increasingly natural way. Robots attract the curiosity of people and stimulate communication. For tourism this is the anchor point to provide new experiences for customers.

Another focus is data analysis: social robots will collect data by interacting with people. Robotics will provide greater efficiency for customers and businessmen and will make it possible to take advantage of Industry 4.0 (big data, broad band and artificial intelligence),

Increasingly more investments are being made in the development of processes that simulate artificial intelligence

multilingualism and time savings. Even though a long road lies ahead for robotics to attain the flexibility and intelligence of people, particularly in personalized customer service and interaction, in tourism, tasks that do not require creativity and repetitive tasks will be relegated to robots.

Furthermore, in the tourism sector, safety is an especially sensitive issue, due to the risk that robots could cause accidents. This drawback implies an investment in modifications to the surrounding environment, facilitating the work of the robot, investing in new technologies and adapting tourism establishments to a phenomenon whose progression should be monitored by scholars.

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The relationship between SCM and business strategy. A Delphi study in Latin America

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Abstract

The aim of this research is to identify the factors that influence the implementation of supply chain management (SCM) strategy in Latin America countries. More specifically, we focus on the study of the degree of SCM strategy involvement into the design of business strategy through the analysis of the following aspects: organization culture, incentive programs for managers, internal alignment, and segmentation. These aspects are evaluated at a firm level of analysis in order to understand how the internal organization gives way to a correct SCM implementation. The authors use a Delphi Methodology on a panel of 13 Latin American experts in SCM and logistics in order to validate a set of SCM constructs that represent different aspects of integration and that should be presented as SCM strategy aspects in the definition of the business strategy of the firm. As a result, the differences in the experts' opinions regarding the proposed constructs clearly indicate that even the constructs have to be included into the SCM strategy, there is still much to be defined in terms of SCM strategy and how SCM participates in the Business Strategy and thus, clear guidelines must be proposed to enable its proper operationalization. To deepen the phenomenon of SCM as a fundamental part of the strategy of the company and thus analyze in detail the conditions that must be taken within the organization for its further operationalization are a still pending innovative approach in the matter. This study permits to develop a useful framework as a guide to involve SCM strategy into business strategy.

Key words

Delphi, Supply Chain Management Strategy, Business strategy, Segmentation, Culture, Internal alignment, Incentives.

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Only a strategic approach of SCM derived into subsequent tactical decisions and operational implementation will provide the benefit that promises

1. Introduction

Supply Chain Management (SCM) is a discipline of management that can be seen in different ways. However, only a strategic approach of SCM derived into subsequent tactical decisions and operational implementation will provide the benefit that promises (Ballou, Gilbert & Mukherjee, 2000; Cooper, Ellram, Gardner & Hanks, 1997; Mentzer, DeWitt, Keebler & Min, 2001). We emphasize the strategic nature of SCM and the importance to be considered in this way. Most research on SCM focuses on the relation among organizations within the supply chain; but scarce literature exists that addresses the issue of internal conditions that allows proper management of the supply chain out of the borders of the organization (Cooper et al., 1997) or how SCM strategies should be aligned with the business strategy (Houé & Guimaraes, 2017)

The purpose of this paper is to explore how, if this happens, SCM strategy is taken into account when the organization delineates its business strategy (Bag, Gupta & Telukdarie, 2018) and how that conditions should be met internally within the organization and then successfully implemented at tactical and operational levels. The main aim of this research is to identify, understand and propose the factors that influence the implementation of the SCM strategy inside the organization.

We explore on a set of constructs, at firm's level, that we defined as critical to be considered as the first steps for a successful implementation of a SCM strategy. While not considering the strategic level any effort that the organization wants to make in the area of SCM will hardly get satisfactory results in the medium and long term.

We identified seven constructs to be considered; these constructs are the analyzed aspects to be evaluated in order to understand how the internal organization, through the defined strategy guidelines defined at a business strategy level, gives way to a correct SCM implementation.

We try to answer the following questions that guide us to the modeling of these constructs.

- Is SCM about logistics, operations or business?
- To what degree is the SCM strategy present and how is it entailment with the business strategy?
- How the culture influences in the grade of engagement?
- How far the SCM strategy seeks to achieve a better performance of the chain although its results arise outside the boundaries of the organization, but within the chain?
- Is the segmentation criterion at the SCM strategy level present?
- To what extent different areas within the organization are aligned with the SCM strategy?
- How the incentive programs for managers are aligned whit the strategy SCM's decisions?
- Which is the role and profile of the Supply Chain Manager?

An extensive questionnaire of 61 questions, (see Annex N° 1), covering necessary aspects to analyze the constructs above mentioned, was designed inside the context of a two round Delphi methodology on a panel of 13 experts selected from academy, consulting and practice with strong Supply Chain Management and Logistics experience in different countries of Latin America. The questionnaire was previously validated by 3 experts to ensure that the questions were correctly asked and that there was no bias from the researchers in how to ask the questions.

The achieving up to now convergent responses indicates that the method guides to a positive and enriching interaction of the whole panel. Nevertheless, we found controversy on the expert panel in different aspects while coincidences on others.

We designed
on a panel of 13
experts selected
from academy,
consulting
and practice

2. Methodology

A Delphi method approach was applied. This methodology has been chosen considering the nature of the investigation. Delphi has proved consistency when the problem under study is complex and/or has not been grounded (Grisham, 2009); or with the aim of describing or delimitating when the evidence is insufficient, unpublished, excessive or controversial. Delphi is also an effective, efficient and flexible research method when exploring new concepts –where there is incomplete knowledge about a problem or a phenomenon. Delphi is the desirable choice when the problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis; when the individuals needed to contribute to the examination of a broad or complex problem have no history of adequate communication and may represent diverse backgrounds with respect to experience or expertise (Linstone & Turoff, 2011). It can be used when there is incomplete knowledge about a problem or phenomena (Skulmoski, Hartman & Krahn, 2007). The method has been used continuously as a technique for prediction and consensus in contexts of uncertainty, and in situations where it is not possible to have recourse to other techniques which are based on objective information (Landeta, Barrutia & Lertxundi, 2011).

While the Delphi is typically carried out as a quantitative technique (Rowe & Wright, 1999), it can be well applied as a qualitative technique. Qualitative research is interpretative in the sense that the

Table 1
Definition of Constructs

#	Construct	Definition	Reference
1	Degree of participation of SCM strategy in the business strategy	It indicates if the SCM strategy take part of the business strategy. Is determined by the existence of SCM strategic initiatives formally included in the business strategy document. This construct has a directed relation to all the other constructs.	(P. K. Chen, 2011; Cheng & Grimm, 2006; Gonzalez-Loureiro, Dabic & Kiessling, 2015)
2	Criterion to guide segmentation of providers and customers	It defines, from the strategy, the guidelines related to SCM so that managers can define the segmentation criterion for the relationship with customers and suppliers. Tries to capture the criterion with which managers' group clients and suppliers according to the level of cooperation/collaboration, coordination or simply transactional.	(Ahmed, Kristal, Pagell & Gattiker, 2017; Segura & Maroto, 2017)
3	Culture of the organization	It reflects how the cultural conditions of the company, its greater or lesser compatibility with the culture of customers and suppliers, influence the relationship with them.	(Cadden, Marshall & Cao, 2013; Cannon, Doney, Mullen & Petersen, 2010; Ueltschy, Ueltschy & Fachinelli, 2007)
4	Distribution of benefits along the chain's criterion	It shows the strategic guidelines that enable managers to work with some customers and suppliers to achieve greater chain efficiency regardless of the link where efficiency occurs. Indicates if from the business strategy managers are enabled to work collaboratively with clients and suppliers to make the chain more efficient even if the result does not occur in the company.	(Cachon & Lariviere, 2005; Leng & Parlar, 2009; Zhang, Yin, Zhang & Nie, 2014)
5	Internal alignment of all the firm's areas that participate in the SCM strategy	Indicates the degree of coordination and internal collaboration between areas to contribute to a better chain efficiency. Analyzes in what degree the different areas of the company work collaboratively looking for the best efficiency of the company and the chain.	(Chen, Mattioda & Daugherty, 2007; Kahn & Mentzer, 1996; Van Hoek, Ellinger & Johnson, 2008)
6	Coherence between strategic SCM'S alignment and incentive program for managers	It determines if, according to what was established in the strategy, incentive system for managers is coherent and seek to promote efficiency inside the company, collaboration among areas, and in the chain beyond the company itself.	(Dencker, 2009; Holmstrom & Milgrom, 1994; Prendergast, 2008)
7	SCM manager's role and profile	It shows the principal functions of the SCM manager, his/her position in the company structure (staff, operative function), and his/her profile, the greater or lesser importance of soft and/or hard skills.	(Lambert, García-Dastugue, & Croxton, 2008)

Many experts believe that the goal is to achieve better performance of the company only

researcher is interested in how the social world is interpreted, understood and experienced; the researcher is flexible and sensitive to the social context within which the data was collected; and qualitative research is about producing holistic understandings of rich, contextual and detailed data. (Skulmoski et al., 2007). The qualitative researcher attempts to make sense of or interpret the phenomena in terms of the meaning the participants place on them (Creswell, 2007).

Delphi method has been used too in SCM (Darkow, Foerster & Von der Gracht, 2015; Garcia Reyes & Giachetti, 2010; Gardas, Raut, Cheikhrouhou & Narkhede, 2019; Melnyk, Lummus, Vokurka, Burns & Sandor, 2009; Ogden, Petersen, Carter & Monczka, 2005; Wolf & Pickler, 2012) but not so much with the aims associated to this study.

As it can be seen, the status of SCM development meets the conditions mentioned above which make the application of the methodology Delphi is plausible for the purposes of this investigation.

The nature of Delphi may be characterized as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem; while a three round Delphi is typical, single and double round Delphi studies have also been completed.

For the selection of the panel it was decided a combination of experts from different fields and profiles, thereby three (3) scholars, five (5) consultants and five (5) practitioners were summoned from or with experience in different Latin American countries like Colombia, Ecuador, Argentina, Chile, Uruguay; the reason of resorting to this mixture was based on the need to acquire a complete view from the theoretical to the practical application, though all the results were analyzed as a whole. Table 2 shows the profile of the panel.

Table 2
Panel profile

#	Type	Countries that know at SCM level	Sectors with experience
1	Consultant	Argentina - Brazil - Germany	Multiple sectors
2	Consultant	Argentina - Uruguay	Multiple sectors
3	Consultant	Argentina - Uruguay - Colombia	Multiple sectors
4	Consultant/Scholar	Colombia	Multiple sectors
5	Consultant/Scholar	Spain - Brazil - Argentina	Multiple sectors
6	Scholar	Argentina - Brazil - United States - United Kingdom	Multiple sectors
7	Scholar	Argentina - Chile - United States	Multiple sectors
8	Practitioner	Argentina - Uruguay - Paraguay	Mass consumption
9	Practitioner	Ecuador	Retail - Industry
10	Practitioner	Argentina	Retail - Consumer goods
11	Practitioner	Argentina - Germany	Automotive
12	Practitioner	Argentina - Chile	Retail - Industry
13	Practitioner	Argentina	Industry

There exists a slight convergence to the concept of “chain efficiency” over the focus on the company efficiency exclusively

A form was sent to each of the experts who were asked to answer all questions for which a six-level Likert scale was used. An even scale was used to avoid the tendency to respond in neutral form considering experts have enough experience to adopt a specific position (Croasmun & Ostrom, 2011). In addition to the responses according to the aforementioned scale was asked to make the explanations and/or comments they considered could enrich each answer although these were not mandatory. Experts were encouraged on this issue as that would make more enriching the next stage in which experts could read the comments of their colleagues before returning to answer the questionnaire.

The next step was the definition of a matrix relating the general topics, constructs and questions we wanted to be answered. Based on it, the questions were defined and located within the matrix to ensure that there were no questions out of context or missing questions as it can be seen in Table N° 3. The 61 questions were presented as statements that allowed respond according to the options set in the defined Likert scale.

Table 3

Matrix relation between questionnaire and constructs

#	Definition of constructs	Question related to the construct
1	Degree of participation of SCM strategy in the business strategy	1; 2; 3; 4; 5; 6; 9; 10; 11; 59; 60; 61
2	Parameters to guide segmentation of providers and customers' criteria	22; 23; 24; 25; 26; 27; 28; 29; 30; 31; 32; 33; 34
3	Culture of the organization	12; 16; 17; 27; 28
4	Distribution of benefits along the chain	13; 14; 15; 18; 19; 20; 21
5	Internal alignment of multiple areas that participate in the SCM strategy	7; 8; 35; 36; 37; 38; 39; 40; 41
6	Incentive program for managers.	53; 54; 55; 56; 57; 58
7	Role of SCM manager	42; 43; 44; 45; 46; 47; 48; 49; 50; 51; 52

It is important to highlight the rigorous work that was done, both in the process of information to the experts as well as in previous meetings with each of them. In addition to the above, monitoring and constant communication throughout the process allowed a 100% response in the two Delphi rounds conducted; we obtained the thirteen responses in each of both rounds.

3. Empirical study

Delphi has a very interesting characteristic that provide enriched information about the phenomena under study; this empiric methodology is a combination of qualitative and quantitative methods. Indeed, a statistical analysis can be made based on the responses of the panel with the strong objective of determining the convergence or not of the different opinions of the panel while a deep information about the phenomena can be obtained from the explanations or justifications to each response expressed by the experts; thus the quantitative part of the study can be considered as a complementary support to the enriched information provided by the qualitative analysis. The result of a Delphi study, in principle, should be more than a statistical group response (Landeta Rodriguez, 2002).

Experts say that there should be a moderate degree of participation of SCM strategy in business strategy

As explained in the previous chapter the panel was formed by 13 experts among practitioners, consultants and scholars with strong influence and knowledge about the topic in question in Latin America.

The number of experts was decided considering the work of Dalkey (1969), cited by Landeta Rodríguez, where a minimum of seven experts was enough to obtain a reduced group error. In fact the use of thirteen experts produces a mean group error of 0,58 which is acceptable (Landeta Rodríguez, 2002, pag. 60, 61). We consider an expert an informed person with experience and a privilege knowledge (Landeta Rodríguez, 2002). This kind of experts with the required characteristics is very scarce due to the incipient of the discipline in this region. Another inconvenience was ensuring that experts follow the process to the end and prevent defections. Taking into account these restrictions and previous experiences on Delphi we decided that a 13 experts' panel was methodologically acceptable. To consider if a candidate could be part of the panel the following aspects were considered: level of knowledge, degree of affectation by the consequences of the study object, facilitative capacity and degree of motivation (Landeta Rodríguez, 2002).

Though the common number of rounds is three, to the extent that we find convergence after the second round we understood that a third round was not going to change the trend so we preferred to keep 100% of the answers we had obtained in the second round. With these considerations, supported by the methodology that allows to finish the process after two rounds (Day & Bobeva, 2005; Grisham, 2009) if there is convergence and taking into account that the effort that we would request to the experts was not justified and would surely generate desertions, we decided to finish in the second round (Reefke & Sundaram, 2018).

3.1. Sample and sources of information

As we said, seven constructs were defined, aiming to show, in some way, the grade of maturity in the relation between business strategy and SCM strategy, the main focus of this investigation. The constructs help understanding how this strategy of SCM, born under the business strategy umbrella, allows a way of its further operationalization too (Simamora, Aiman & Subiyanto, 2016); thus understanding how the internal organization gives way to a correct SCM's implementation. These constructs clearly show the focus of the investigation; convinced that SCM is about relations outside the frontiers of the company, it is not a contradiction at all that the first focus is inside the organization.

The questionnaire's design allowed us a full quantitative interpretation of the opinion of the experts. The last three questions were included *ex-professo* trying to understand the whole vision the experts have in relation with SCM

3.2. Delphi 1st round

The results of the first round allowed to interpret a row opinion since experts had not interact yet while it formed the basis for the subsequent analysis of convergence.

To carry the experts to the relationship between strategy and SCM, the first group of questions was aimed to understand their opinion regarding the business strategy; consensus on the role it plays in business strategy was obtained. The consensus vanished when the SCM strategy was included; specifically, the question N° 8 showed an important divergence while n° 7 showed consensus; experts are aligned when SCM is an inside the organization issue but they do not share the same view when SCM goes outside its frontiers.

The next set of questions included collaboration and overall efficiency in the short/long term; exists good consensus around the benefits of a long term relationship within some customers/

**For experts,
there are
not clear
parameters
to guide SCM
segmentation**

providers although some experts differ, regarding the short term benefits (lower consensus); however, the panel does not seem to share their views on the distribution of the benefits that could be achieved from the SCM strategy. The divergence of views on this strategy aim of SCM is surprising; many experts believe that the goal is to achieve better performance of the company only, which would contradict one of the basic strategic concepts of SCM. We also find contradictions in the experts since questioned about the benefit that the strategy should look for in the whole chain, there is a strong positive consensus. In the same way, in this first round experts do not agree sharing or not the benefits that occur in the chain regardless of the company where they are generated. This last point is critical, not find consensus shows a way of seeing the SCM that directly contradict the principle of collaboration that should be present in the SCM strategy.

Experts agree that there should be a concept of segmentation on both clients and suppliers, the experts' opinions diverge when asking if this segmentation criterion has to be defined at the strategic level or differs for different areas of the company.

Indirect involvement of some customer/suppliers in defining the company strategy would be important by most experts; this would indicate a degree of maturity about seeing the SCM beyond the borders of the organization.

Affinity, as part of the culture, seems not to be a clear issue in the opinion of several experts on the panel; nevertheless, they agree that exist other conditions besides cultural one when segmenting.

In relation to the "internal" SCM and its relation with different areas of the company, especially with logistics and procurement, the answers, though, don't show a strong consensus. Experts agree that different areas of the company have responsibilities in delineating the strategy of SCM, nevertheless they tend to limit the scope of SCM to areas strongly related with procurement and logistics with scarce participation of other areas like finance, RRHH or marketing as examples.

Another issue considered, related to the SCM, is the incentive programs for managers. Experts agree about the importance of aligning the incentive programs with the strategy of SCM trying to avoid incentives to focus on the objectives of the areas in an isolated form, thus contributing to the overall performance of the business. However, alignment with goals beyond the borders of the organization does not seem to have consensus among experts; while they agree that the incentives must be aligned with the strategy of SCM, again, it does not seem that the overall efficiency of the chain is a priority.

To understand which has to be the profile of the SCM manager we asked the experts, they agree about the importance of the existence of a SCM manager but in all the cases focusing his/her functions on the internal integration; none of them made reference to interaction outside the boundaries of the organization itself. Remarkable was the lack of consensus in relation with the relation between SCM manager and logistics and purchasing manager; the majority in the panel considers that purchasing and logistics managers must depend on the first; lesser consensus as to the existence of both (logistics/purchasing and SCM) in the organization. After a moderate consensus, it does not seem that the functions of SCM manager should be purely operating as to which should not be in charge of operations; however, the consensus becomes greater when they state that the SCM manager should be a support (staff) manager and even more consensus that its main function should be internal and external coordination.

Companies manage an internal culture that is part of their informal organization and should influence decisions on SC

3.3. Delphi 2nd round

As it can be expected, the 2nd round seeks convergence. The anonymous interaction among experts is the key of this methodology; each expert analyzes its own response, the rest of the panel responses and provides a new answer with the corresponding new justification.

The convergence of each answer was considered in order to understand how experts agreed, dissented or changed their mind in the interaction with the rest of the panel through their answers; the convergence and deviation of each answer is shown in Annex 1.

In the first group of questions, experts reinforce their answers due to a higher concentration (convergence) of their opinions. In the block of questions that refers to the SCM strategy and specifically in the internal/external participation, the second round shows a convergence achieving a high degree of consensus on the importance of external integration of the company.

About collaboration, again this round leads to consensus; specifically, exists a slight convergence in favor to the concept of “chain efficiency” over the focus on the company efficiency exclusively.

The next group of questions was focused on benefit distribution along the chain. Although the consensus is not absolute and there is dispersion in some specific issues, the situation of convergence is presented again in this round. Experts tended to agree on the redistribution of profits arising from the collaboration; the specific question of defining the strategy willingness to cooperate but the benefit is not produced in our company experts have not been radical in their answers and while converged, did a major turnoff. In the specific case of the definition of segmentation criterion, no convergence was achieved; some experts do not believe that segmentation criterion should be defined at a strategic level rather according to specific needs of some areas while others do consider to a greater or lesser extent.

Regarding the participation of suppliers/customers in the firm strategy, SCM experts repeat the opinion of the first round: strong consensus indirect participation and greater dispersion when direct participation in the SCM strategy arises. Cultural conditions, specifically affinity conditions between supplier and customer have a different view among experts; they have not generated convergence in the second round; instead they continue agreeing that SCM strategy should consider other criteria. The internal SCM, the relation among different areas is still, in this second stage, with different criteria between experts, in general, they maintain their opinions with a consequent low convergence; experts largely agree that there are multiple areas to be part of the strategy of SCM. The relationship between SCM strategy and logistics efficiency is the goal for many experts while it is not for others, it cannot be observed convergence at this point as a consequence of a great variability in the responses.

On the set of questions related to incentive systems it can be seen that experts generally maintain their original answers with a small convergence (less variability); they maintain the importance of aligning incentive systems with SCM strategy; they agree that incentives have to be geared towards achieving chain efficiency more than just the company's one; finally, they reject the generation of incentive tied to area objectives.

At last, the role of the SC manager is a non-convergence issue; experts maintain their initial opinion about the functions and profile of the manager of SCM.

Greater affinity derived from sharing aspects of organizational culture should facilitate collaborative relationship between them

4. Results

Based on the result of the Delphi process it can be inferred that exists a strategic vision of SCM; experts concur, though not with a high degree of convergence, on how important is SCM strategy as part of the business strategy; after the Delphi process, the panel reached a convergence on the purpose of external integration (with suppliers and customers) as one of the objectives of SCM even though the internal alignment is considered, probably, more important than the latter. Up to this point, beyond any differences that do not point the focus of research, came to a first conclusion on the strategic nature of SCM and the necessity to be part of the overall business strategy.

Therefore, experts agree the strategic nature of SCM, then can provide an answer to our first construct “degree of participation of SCM strategy in the business strategy”: Experts say there should be a moderate degree of participation of SCM strategy in business strategy, but it has to be present.

Segmentation is not a clear issue for the experts; most of them do not consider segmentation as critical at a strategic level so it was difficult to define or perceive parameters for segmentation; experts refer that it is important to segment but in almost all cases have referenced the classical segmentation criterion on which the procurement area segments according to its own criterion and marketing area as mostly commercial basis; several experts refer to the fact that SCM segmentation criterion should continue commercial segmentation; besides there is not clear parameters to guide a SCM segmentation. This is a problem that should be analyzed in greater depth since from segmentation criterion at the strategic level should emerge guidelines (parameters) to be taken into account so, at tactical and operational level, the different areas define the conditions of interaction with suppliers and customers; this situation is in our opinion one of the points in the delineation of SCM strategy most influential as a parameter of its operationalization and at the same time probably the less developed.

Then, to answer the second construct “parameters to guide segmentation of providers and customers” experts didn’t give a clear explanation on this issue.

The following construct aims to understand the influence of the cultural aspects of the organization; companies manage an internal culture that in many cases is part of their informal organization and should influence decisions on SCM. The affinity that may exist between companies that interact with each other is given by the culture of these organizations and should be a high impact factor in the relationship. Greater affinity derived from sharing aspects of organizational culture should facilitate collaborative relationship between them. Experts do not believe that the cultural conditions have a high degree of importance or influence strategic decisions on SCM; however, many consider cultural affinity contributes to the relationship but is not determining. From this experts’ point of view, it could be interpreted that there is still a strong conceptual bias towards a more operational SCM oriented closer to outcomes that to a SCM with a strategic approach seeking collaborative relationship focused on long-term results for the chain and then, as a result, improved profitability for the company. The answer to the third construct “culture of the organization” again indicates a light focus on a strategy vision despite experts take into account the culture as a factor to be taken in account.

Then “the culture of the organization” is not seen by experts as a key element that influences the strategy alignments of SCM.

Many experts consider cultural affinity contributes to the relationship but is not determining

The next construct, distribution of benefits, indicates on one side a low consensus though a slight convergence in favor of the concept of benefit of the chain while the majority of the panel believes that the exclusive benefit of the company would not be above achieving mutual benefit. (questions number 13, 14 and 18, 19), confirming the postulate chain efficiency and not just the company although some experts still consider to some extent the concept of profitability for the company exclusively. In the same way there is convergence and low variability in reference to the concept of distribution of benefits regardless of which company they occur; this would indicate that experts agree on the concept of collaboration that should be aligned with the previous concept of benefit in the chain, however, the former shows less consensus than the latter.

Therefore, the construct “benefit distribution along the chain” would indicate that SCM’s strategy should be geared to the benefit of the chain as a whole even irrespective of the company in which it occurs on the basis of a redistribution of it.

Analyzing the answers related to internal alignment it can be observed a symmetrical view of the panel in the relation procurement/SCM and logistics/SCM; in the same way they agree that SCM emerges from an evolution of the procurement/logistics areas; this idea of linking SCM with supply and logistics, rooted in several of the experts, leads to a significant divergence of opinion when they were asked if SCM strategy should be approached from a perspective of logistics efficiency, the ghost of logistics is always present when talking about SCM. Derived from the functions that should have the manager of SCM emerges that experts do not agree that the internal alignment is an important condition for proper implementation of the strategy of SCM. In the same way, there is no agreement as to the coordination of activities outside the borders of the company; several experts do not believe the SCM manager should be involved in issues related to chain coordination, while many others do believe so; experts too believe that is imperative for the SCM manager having skills in hard sciences like logistics or procurement and less important skills in soft disciplines. This would indicate once again bias towards a SCM experts oriented operating efficiency as core and not as a result of a strategy based on the relationship with the members of the chain; experts do not believe the SCM manager principal function is to achieve internal alienation nor the external one, but on the other side practically all experts agree that multiple areas have to participate in the SCM strategy.

Then “internal alignment of all areas that participate in the SCM strategy” is a confusing construct that has to be studied deeper because of the contradictions revealed by analyzing different questions related.

The sixth construct “incentive programs for managers” again showed contradictions in the answers related to this issue. Clearly we found a strong consensus that incentive programs have to be aligned with business strategy and SCM strategy; nevertheless, experts are not completely agreeing with the concept of aligning incentive with internal alignment for better performance nor internal alignment for chain performance. Moreover, the question of whether incentive systems should align with the results of each area, the expected negative response did not occur. Understanding the difficulty of obtaining results when managers do not have a real incentive (economic or otherwise) to carry out the guidelines issued by the business strategy or the strategy of SCM, it cannot be expected results according to them. In fact, some experts consider important an incentive program measured through the performance of a specific area. This difficult to produce an internal alignment aimed to obtain better performance of the organization as a whole, even more, results of efficiency in the chain is almost impossible.

Culture of the organization is not seen by experts as a key element that influences the strategy alignments of SCM

Then “incentive program for managers” incentive not seem to be directly linked to obtaining a major performance of the company or the chain.

At last, the seventh construct defined, guide us to the role of the SCM manager; 10 questions related to this construct were made to experts; they coincided on the importance of a SCM manager but analyzing the SCM manager functions exists great consensus that logistics and/or procurement managers have to report to him/her showing the tendency to link SCM with operations and therefore putting it aside somehow from the strategic function. Experts do not agree that the manager of SCM has to do with internal alignment or external coordination, nor that their role is supportive; low convergence and a high dispersion in this subject are observed. Questions 51 and 52 show contradiction in the experts, themselves and not between them, since they agree in both answers favorably, in other words, there is convergence and low variability in affirming that the manager of SCM must have soft qualities like negotiation, coordination and relationship, but also in that it is indispensable to dominate hard areas such as logistics, purchasing and supply.

About “the role of the SCM manager” we can assure that there is no consensus about his/her role and profile.

5. Discussion

Analyzing 1st and 2nd round the results show a considerable grade of convergence in various issues. Exist two factors to be taken in account and that has to be analyzed; on the one hand the variability in the responses of the experts that can be seen through the deviation in each of the answers; on the other hand, the degree of convergence obtained after the second round. The first factor seeks to interpret the degree of maturity that has SCM; the second has two readings, on the one hand the permeability of experts to the views of their colleagues, suggesting indirectly the need for more theoretical development while on the other hand contributes to the convergence of opinion that underpin the interpretation of the constructs derived therefrom.

Though the grade of convergence was not strongly marked we interpret that the convergence gives us information about the phenomena; convergence shows the low maturity level while deviation indicates experts are not completely agreeing with basics concepts of SCM.

They were presented to the experts three conceptual definitions of SCM, three completely different visions, a purely logistical orientation, a definition involving SCM within the scope of operations and a business-oriented definition; convergence was absolute in the third case, all the experts agreed that the business vision is the one that is consistent with SCM.

As a first consequence it would seem SCM has to do with business more than with operation, not only within the organization, as indicated by the definition by consensus. However, when we try to shape the constructs to validate this business vision we found opinions that are not consistent with this vision of business. Analyzing the other two answers referred to the SCM vision it can be explained the partial contradictions; though the strategic/business appear to be indisputable, the results of the operational and logistics view show some experts with a bias to the operational and in a lesser extent to the logistics view of the SCM. This dichotomy would explain the contradictions that arise in some of the survey questions and in consequence would reinforce the low grade of maturity SCM has in Latin-America.

Internal alignment is an important condition for proper implementation of the strategy of SCM

6. Managerial implications

Understanding the dynamics of Supply Chain Management from the point of view of the internal organization, provides real tools so that the executives of the companies can understand how the organization should be aligned from the strategy to obtain results in the genuine relationship with the other members of the chain.

The analyzed constructs and the effect they have for a beneficial coordination of the chain can be a guide for companies to be more efficient together, defining the levels of coordination/cooperation that can be achieved with suppliers and/or clients; understanding the internal aspects that they should consider previously.

7. Conclusions

To achieve its objectives, i.e. identification of SCM strategy key constructs', the research addressed key issues concerning the area of business strategy and SCM strategy.

The use of the Delphi methodology in the strategic analysis of SCM has allowed experts to interact with their knowledge and opinions and through the level of consensus and dissent obtained in some of the topics providing an important contribution to the objective of the research here addressed

The methodology has also allowed to show the maturity of SCM in Latin America. As it is clear from the previous chapter "Results" diversity of opinions from experts on some key issues and the low degree of consensus highlights the need for further work on the subject. In this sense, the use of the Delphi methodology is thus amply justified by the contribution provided when there is incomplete knowledge about a problem or phenomena (Skulmoski et al., 2007).

The set of questions that were formed as a guide to achieve the first approach in the delineation of the seven constructs chosen to analyze the SCM, its relationship with organizational strategy and how to carry it later implementation, allowed understanding how such constructs behave.

As conclusion, we can say. First, from a theoretical perspective, the research expanded knowledge in the area by bringing to the surface relevant aspects of the strategic dimension of SCM that was hitherto overlooked or not properly considered. It takes the initial steps towards the definition of a framework to present SCM in strategic terms in the field of business strategy. More specifically, on the basis of a recognized scientific method, this framework will provide significant indications of how SCM strategy should be presented in the definition of business strategy. The structured perspective of the framework will facilitate understanding and will allow the deconstruction of complex issues concerning the way SCM strategy has to do with business strategy into specific issues such as those comprising the constructs presented. Second, the applications of the framework will provide a guide for managers to align the SCM strategy with the business; managers will have a clear orientation on the segmentation criterion on which they will take different definitions in SCM; they will receive a clear message through correct systems of incentives to act on the overall efficiency of the company and the chain. Third, and probably most important, it will shed light on the strategic importance of SCM and on the importance of delineating a correct SCM strategy that guide managers to a correct operational implementation.

The differences in the experts' opinions regarding the proposed constructs clearly indicate that there is still much to be defined in terms of SCM and about the conditions that allow

All the experts agree that the business vision is the one that is consistent with SCM

companies to make the strategy of SCM defined at the level of business strategy and thus can be clearly defined guidelines to enable its proper operation.

8. Limitations and next steps

The result of this investigation has shown the need to deepen the aspects considered here. Applying a single methodology leads to a limitation of the results obtained, so it is proposed to validate the model by applying other methodologies (surveys, case method) that allow a greater consistency to the one obtained here. In another vein, this research has analyzed the link between the business strategy and SCM in general. In this sense, it is proposed as next research steps to study the issue in specific segments which will allow understanding whether the behavior is maintained or not in different types of industries.

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Annex 1

Delphi Questionnaire

#	Question	FIRST ROUND		SECOND ROUND		Dif. Dev.	% Dev.
		Mean	Dev.	Mean	Dev.		
1	Every company should do a formal “strategic planning of the business”	5,46	0,78	5,54	0,78	0,00	0%
2	Within the process of “strategic planning of the business”, the guidelines for the definition of the “SCM strategy” should be established.	5,38	0,87	5,62	0,51	0,36	42%
3	The “SCM strategy” must always be aligned with the “strategic planning of the business”.	5,85	0,38	5,85	0,38	0,00	0%
4	The processes of “strategic planning of the business” are more formal in multinational companies than in the local ones.	4,62	0,96	4,77	0,6	0,36	38%
5	The processes of “strategic planning of the business” become more formal with the growth of the company.	4,92	0,95	5,15	0,38	0,58	61%
6	It is critical for the companies to formulate a “SCM Strategy”.	5,08	0,95	5,00	0,82	0,14	14%
7	The definition of “SCM strategy” is related to the internal integration (the different areas of the company) and/or external integration (suppliers and clients) of the business.	5,85	0,38	5,85	0,38	0,00	0%
8	The definition of the “SCM strategy” is related with the external integration (suppliers and clients) of the business.	4,5	1,74	5,77	0,44	1,30	75%
9	The “SCM strategy” must be defined only by the company’s management.	2,38	1,04	2,38	1,33	-0,28	-27%
10	The “SCM Strategy” is defined differently according to the size of the company.	3,92	1,5	3,92	1,38	0,12	8%
11	The “SCM Strategy” is defined differently if the company is local, Multi Latin (a multinational company within Latin American countries) or multinational.	3,62	1,66	3,92	1,12	0,55	33%
12	The company’s culture affects the content of the “SCM Strategy”.	5,31	1,18	5,38	1,12	0,06	5%
13	The “SCM Strategy” must strive to improve the efficiency (this could mean a betterment in profit, image, customer service, etc.) exclusively for the company.	2,77	1,69	2,46	1,13	0,56	33%
14	The “SCM Strategy” must strive to improve the efficiency (this could mean a betterment in profit, image, customer service, etc.) for the chain or at least a dyad (supplier-customer relation).	4,92	1,44	5,38	0,77	0,67	47%
15	In the “SCM Strategy”, indicators must be defined in order to measure objectively the best efficiency of the company or the chain.	5,46	1,33	5,69	0,85	0,48	36%
16	The collaboration with (some) suppliers and customers generates better profitability to the business in the short term.	4,38	1,19	4,08	0,76	0,43	36%
17	The collaboration with (some) suppliers and customers generates better profitability to the business in the long term.	5,62	0,65	5,77	0,44	0,21	33%
18	The “SCM Strategy” must search for mechanisms that enable a relationship with suppliers and customers, in order to improve the efficiency of the company exclusively.	2,77	1,59	2,46	1,45	0,14	9%
19	The “SCM Strategy” must search for mechanisms that enable a relationship with suppliers and customers, in order to improve the global efficiency of the chain/service to the consumer (either one or both)	5,31	1,18	5,38	0,77	0,41	35%

Annex 1 (continued)

Delphi Questionnaire

#	Question	FIRST ROUND		SECOND ROUND		Dif. Dev.	% Dev.
		Mean	Dev.	Mean	Dev.		
20	The guidelines that allow to redistribute the results by the efficiencies achieved in the chain must be defined by the “SCM Strategy”.	4,46	1,45	5,00	0,71	0,74	51%
21	The will to contribute or not with suppliers/customers in order to achieve efficiency in the chain, even though it is not done in the company, must be defined in the “SCM Strategy”.	4,15	1,14	4,54	1,2	–0,05	–5%
22	Companies must relate with all suppliers and customers in the same way.	1,77	1,36	1,69	1,38	–0,01	–1%
23	Companies must apply supplier segmentation criteria when they define their “SCM Strategy”	5,46	1,13	5,38	1,39	–0,26	–23%
24	Companies must apply customer segmentation criteria when they define their “SCM Strategy”	5,38	1,12	5,77	0,44	0,68	61%
25	Within the “SCM Strategy”, each company must clearly differentiate with whom to collaborate, with whom to coordinate and with whom to only make transactions (arm length).	5,46	1,13	5,85	0,38	0,75	67%
26	Companies must segment in order to differentiate with which companies they transact exclusively (arm length), coordinate or cooperate on their external relation inside the “SCM Strategy”.	5,5	0,67	5,62	0,65	0,02	4%
27	When applying segmentation criteria related to SCM, companies must take into consideration the cultural conditions of “affinity” with suppliers.	4,46	1,2	4,38	1,04	0,15	13%
28	When applying segmentation criteria related to SCM, companies must take into consideration the cultural conditions of “affinity” with customers.	4,15	1,41	4,31	1,03	0,37	27%
29	The defined segmentation in the “SCM Strategy”, as well as the “cultural conditions”, takes other criteria into consideration.	5,62	0,51	5,54	0,78	–0,27	–53%
30	The segmentation of suppliers/customers must respond to criteria/objectives that are not necessarily related to the “SCM Strategy”, but rather with objectives of other specific areas of the company.	4,31	1,32	4,15	1,34	–0,03	–2%
31	Some suppliers must participate directly in the definition of the “SCM Strategy” of the company.	3,85	1,28	4,00	0,82	0,46	36%
32	Some customers must participate directly in the definition of the “SCM Strategy” of the company.	3,62	1,33	3,62	0,87	0,46	34%
33	Some suppliers must participate indirectly in the definition of the “SCM Strategy” of the company.	5,08	0,95	5,00	0,82	0,14	14%
34	Some customers must participate indirectly in the definition of the “SCM Strategy” of the company.	4,85	1,28	5,23	0,73	0,56	43%
35	SCM is the evolution of logistics and/or purchases and supplying.	3,77	1,42	4,00	0,82	0,61	43%
36	SCM and logistics are similar functions or are very related in the companies.	2,92	1,61	2,62	0,96	0,64	40%
37	SCM and purchases/supplying are similar functions or are very related in the companies.	3,08	1,8	2,85	1,34	0,46	25%
38	The area of logistics and/or purchases must be the only ones to take part in the design of the “SCM Strategy”.	1,38	0,77	1,15	0,55	0,21	28%

Annex 1 (continued)

Delphi Questionnaire

#	Question	FIRST ROUND		SECOND ROUND		Dif. Dev.	% Dev.
		Mean	Dev.	Mean	Dev.		
39	The area of logistics and/or purchases must have the biggest influence/importance in the design of the “SCM Strategy”.	2,77	1,36	2,08	0,95	0,41	30%
40	Multiple areas must participate in the design of the “SCM Strategy”	5,62	0,87	5,54	0,97	–0,1	–11%
41	The companies that formulate “SCM Strategy” must do it from the perspective of achieving logistic efficiency.	2,46	1,45	2,92	1,44	0,01	1%
42	Companies must have a SCM manager, in the case of smaller companies, a manager responsible for this function.	4,85	1,34	4,69	1,18	0,16	12%
43	The decisions related to SCM, must be distributed between several departments.	2,54	1,45	2,46	1,33	0,12	8%
44	The logistics manager must report to the SCM manager.	4,85	1,28	4,92	1,12	0,17	13%
45	The purchases/supplying manager must report to the SCM manager.	4,77	1,3	4,92	0,95	0,35	27%
46	The SC manager must report to the manager of some operative area (purchases, supplying, logistics or other).	1,92	1,5	1,38	0,65	0,85	57%
47	There must be a logistics manager and a SCM manager coexisting in the same company since they have different functions.	3,69	1,55	3,69	1,55	0,00	0%
48	The SCM management is operative (it is in charge of the operations or in charge of some operations).	2,46	1,56	2,23	1,64	–0,08	–5%
49	SCM is functional support area (staff) that has as main function to achieve internal alienation.	3,15	2,03	3,00	1,96	0,08	4%
50	SCM is functional support area (staff) that has as main function to achieve the coordination of external activities with suppliers and customers.	3,15	2,03	2,62	2,06	–0,03	–1%
51	The SCM manager must be more capable in the negotiation, coordination, relation (soft or of management) areas, rather than being capable in the logistics, supplying or purchases areas.	4,85	0,8	4,85	0,38	0,43	53%
52	A SCM managers must have knowledge about the logistics, purchases and supplying areas.	4,08	1,19	4,08	1,04	0,15	13%
53	The incentive systems for directors and managers must help align the objectives of the different areas of the company, in order to achieve better efficiency of the company.	4,92	1,44	5,31	0,85	0,59	41%
54	The incentive systems for directors and managers must help align the objectives of the different areas of the company, in order to achieve better efficiency of the chain.	4,38	1,71	4,92	1,26	0,45	27%
55	The incentive systems for directors and managers must be oriented so that each department/area is able to achieve as much efficiency as possible within its department/area.	2,92	1,5	3,15	1,28	0,22	14%
56	Within the “SCM Strategy”, is primordial to take decisions oriented to achieve the internal integration/alignment of the different departments/ areas.	5,46	0,66	5,62	0,51	0,15	23%

Annex 1 (continued)

Delphi Questionnaire

#	Question	FIRST ROUND		SECOND ROUND		Dif. Dev.	% Dev.
		Mean	Dev.	Mean	Dev.		
57	The incentive systems for directors and managers must be aligned with the objectives stated by the “strategic business planning”.	5,62	0,65	5,85	0,38	0,27	42%
58	The incentive systems for directors and managers must be aligned with the objectives stated by the “SCM Strategy”.	5,46	0,66	5,62	0,51	0,15	23%
59	SCM takes all of the logistics competences and presents them in a “superior” way, highlighting every logistic process that is part of the supply chain.	2,54	1,33	2,62	1,45	–0,12	
60	SCM understands that the processes go beyond the borders of the company but maintain the focus in the operational processes (purchase, logistics, demand forecast, etc.) that is, an operative integration of the whole supply chain with focus in the obtainment of benefits within the company.	3,62	1,39	3,54	1,20	0,19	
61	SCM emerges by understanding that the “business” processes are strongly interrelated internally within the company and along the entire value chain equally, beyond the company.	5,69	0,48	6,00	0,00	0,48	

1 - Full Disagreement; 2 - Strong Disagreement; 3 - Partial Disagreement; 4 - Partial Agreement; 5 - Strong Agreement; 6 - Full Agreement.

Typology and decision-making process of cinema audiences in theaters: Actors and Directors

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Abstract

This article provides additional information about moviegoers. It aims to define, through a correctly applied methodology, the motivational factors (internal, external or experiential) that determine the choice of one film over another. The analysis of these factors has been able to establish those that have a greater or lesser effect on the consumer's decision-making process. This can be of great significance in terms of the economic impact that this decision has on the final box office revenue of a movie. Likewise, the applied methodology has allowed us to establish, with a discriminant and predictive nature, the different typologies of Spanish moviegoers. It was possible to clearly differentiate two groups, which we have called Actors and Directors, whose decision-making process is significantly different, according to the factors that motivate their process of selection of the movie they decide to watch. Actor consumers make decisions from a simpler perspective, while Director consumers decide from a much more complex perspective, taking into consideration a large number of variables.

Key words

marketing, moviegoer, consumer behavior, decision-making process, movie theaters.

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The movie industry is characterized by a unique product distributed in multiple formats, all of which have a relatively short duration

1. Introduction

The movie industry is an exciting field for market research, because of its peculiarities. It is an industry characterized by a unique product distributed in multiple formats, all of which have a relatively short duration.

The movie business is the main sector of the entertainment product market. In the USA, it is currently the largest cultural export product, and in the rest of the developed countries, it has a great economic importance as both an economic engine and as an element that defines the cultural identity of a country.

In Spain, the cultural sector accounts for 3.2% of the gross domestic product, according to the Cultural Statistical Yearbook of the Ministry of Education, Culture and Sports (2016), which indicates that the average annual expenditure per household on goods and cultural services is €651.4, and the cultural sector employs 428,500 people, accounting for 2.5% of the overall employment in Spain. As the main business in the cultural sector in Spain, the movie business accounted for the sales of 94 million tickets in 2015, which generated €572 million in box office receipts in movie theaters alone.

The study of the factors that result in the acquisition or enjoyment of goods by the consumer is a field which has been the subject of a great deal of study. Nevertheless, the movie market is a field of study still to be developed, because of the peculiarities of the product itself and the countless variables that can affect the consumer's choice.

The behavior of the movie consumer is determined by a combination of very different factors that influence the final decision about whether to see one movie or another. Various studies have contributed to establishing these decisive factors and describing the purchase decision process by movie consumers, but there is a lack of models that analyze the integration of all of these factors and provide an empirical analysis of the real impact of these on the final movie selection and theater attendance phase.

Most of the models designed to study moviegoers have been econometric models with regression analysis, based on a group of already released movies, with the aim of estimating the earnings of the movie (Elberse & Anand, 2007; Ravid, 1999; Litman, 1983). Other authors have focused the analysis on consumer behavior in relation to the movie selection (Eliashberg, Jonker, Sawhney & Wierenga, 2000; Eliashberg & Shawney, 1994).

Few studies have been based on broad quantitative methods that also analyze the factors that motivate consumers in the selection of the movie they want to watch. Those that have been carried out (Rodríguez-Rabadán, 2014; Cuadrado, Filimon, Kerrigan & Rurale, 2008) have consisted of relatively small surveys and used questionnaires that provided direct information about the behavior and decision-making of the consumer. This same quantitative approach, using the consumer as a direct source of information, will be the basis of the present study, although in this case, a broad sample of more than 5,000 moviegoers was used.

The main objective of this study is to determine the factors that influence in the decision of a moviegoer when he/she has to choose a movie, and to verify whether there are separate groups of spectators with different behaviors that allow us to identify a consumer-moviegoer typology.

The movie business is the main sector of the entertainment product market

To identify the main factors, we draw on decision models previously described in literature (Ravid, 1999; De Vany & Walls, 1999; De Silva, 1998; Litman & Ahn, 1998; Linton & Petrovich, 1988; Eliashberg & Shugan, 1997). We subsequently conducted an empirical study with a statistically representative sample of more than 5000 subjects, which provides us with significant information about the desired objectives, as we will see later on.

2. Review of the literature

Linton and Petrovich already pointed out in 1988 the lack of knowledge about the process of movie selection, as studied from the point of view of consumers, and about how they acquire the necessary information to make their decision.

Audience research has not traditionally been used in the movie industry. More specifically, during the first half of the 20th century, the American movie industry operated with less research than any other, and this occurred during one of the most important and influential periods, between the turn of the century and the 1950s (Jowett, 1985).

In the second half of the 20th century, the industry started to conduct incipient market studies, based basically on observation and surveys. Some studies, like those carried out by Paul Lazarsfeld (1947), defined the field of work for subsequent studies.

The motivational factors of the behavior of the moviegoers have been analyzed from different perspectives, and authors like Eliashberg & Sawhney (1994), Cepeda (2005) and Hennig-Thurau et al. (2006) agree upon classifying them into the following groups:

- **Internal factors:** we consider internal factors to be those intrinsic to the movie and that belong to it from the moment of its conception or production. Among them, it is worth highlighting the creative and technical elements: the story, genre, actors, director, etc. (Hennig-Thurau, Houston & Walsh, 2006).
- **External factors:** we consider external factors to be those created separately from the movie, but that affect how the information reaches the consumers and that participate in their decision making. External factors are those related to the advertising campaign each distribution company initiates to release a title in the movie theaters. Some authors like Eliashberg & Sujan (1997) or Neelamegham & Chintagunta (1999) refer to these variables as “non-experiential factors.” Other factors identified as external are the date of the premiere, the number of movie theaters in which the movie is premiered and the production budget.
- **Experiential factors:** these are those factors derived from a more direct relationship with the watching of the movie, and they come primarily from people who have already seen the movie and generate their own comments or recommendations. Among these factors, worth highlighting are reviews, word of mouth and recommendations in the social media.

Within the first group related to “internal factors,” the existing literature includes, within the features of the movie that influence the consumer’s decision, elements like the topic and genre (Desay & Basuroy, 2005; De Silva, 1998; Austin & Gordon, 1987; Litman, 1983), the attractiveness of the actors (Simonton, 2009; De Vany & Walls, 1999; Ravid, 1997 and 1999; De Silva, 1998) and directors and producers. Other important factors within this category that determine the success of a movie are the familiarity of the topic, either due to the

Few studies have been based on broad quantitative methods that also analyze the factors that motivate consumers in the selection of the movie they want to watch

relevance of the story or because it is a sequel to a well-known movie or based on published books.

The second group is related to “external factors,” which do not correspond to the characteristics of the movie, but rather to actions performed by third parties. It also has empirical studies which attempt to determine the impact these elements have on the demand for a particular movie. The external factors come from actions generally orchestrated by production companies and/or film distributors. Among others, the most relevant factors are: the production budget, the investment in advertising, the premier date or the number of screens on which it is released.

Numerous studies sustain that in the movie market, the number of reviews and critiques of the movies is more important than the quality of the latter (Sorensen & Rasmussen, 2004). One of the most accepted generalizations in the study of marketing is that communication by word of mouth is a key source of information in the consumer’s decision-making process (Godes & Mayzlin, 2004; Arndt, 1967). Word of mouth comes from a content generated by the consumers themselves, and which is generally perceived as more trustworthy than advertising (Liu, 2006) and better reflects the consumers’ tastes than reviews by professionals (Holbrook, 1998).

Some studies highlight the importance of the advertising factor in the success of a movie (McKenzie, 2012; Elberse & Anand, 2007; Prag & Casavant, 1994; Eliashberg et al., 2000; Faber & O’Guinn, 1984). Other studies point to the number of theaters in which a movie is released (Swami, Eliashberg & Weinberg, 1999) and the date and setting of the premiere (Krider & Weinberg, 1998).

In the same vein, among the elements classified as external and traditionally considered to have great conversion value in this industry is the trailer (Haw, Ho, Lim & Wong, 2013; Finsterwalder, Kuppelwieser & De Villiers, 2012; Iida, Goto, Fukuchi & Amasaka, 2012; Holbrook & Hirschman, 1982). According to Belch & Belch (2007), movie trailers are considered an effective way of advertising a movie, due to their visual and emotional nature, making them products or services providing self-satisfaction and enjoyment.

The release date is another of the external factors determined by the film distributor, who in order to achieve a larger number of viewers, will seek a time of year when consumers are more receptive to this habit. Radas & Shugan (1995) establish a seasonality model that they apply to the movie industry. Their conclusions found that the summer and Christmas vacation periods were the moments when movies lured the largest audiences and generated the most box office receipts.

Regarding the price factor as an external element which motivates the moviegoers’ demand, Orbach & Einav (2007) conducted a study on the possible explanations of the fixed price policy by movie theaters. Their conclusions suggest that theaters could increase their profits if they practiced variable pricing policies, and that the industry could earn more if it set a higher price for the “event movies” and different prices according to the sessions.

The third group of factors identified as relevant in the decision by consumers are those defined as non-studio factors (Hennig-Thurau et al., 2006); these encompass what in this paper is called experiential factors. These factors are those whose source is linked to having previously seen the movie.

We conducted an empirical study with a statistically representative sample of more than 5,000 subjects

In most of the studies reviewed, experiential factors are the ones that tend to have the least influence on the consumer's decision. These refer to, among other things, reviews (Eliashberg & Shugan, 1997), the awards received by the films (Prag & Casavant, 1994; Holbrook, 1998; Litman, 1983) and the movie quality as perceived by the consumer (Neelamegham & Chintagunta, 1999).

Deuchert, Adjamah & Pauly (2005) studied the power of awards, analyzing a sample of 224 movies released between 1990 and 2000. The conclusions inferred by this study are that even though awards have a positive effect, the most important impact comes from the nominations. Austin (1989) emphasizes the fact that the value of these awards in the market is defined not by the awards themselves, but rather by the amount of publicity and comments about the quality of the movie endorsed by the award.

Recommendations by critics are another experiential factor which may be relevant in the consumer's decision-making process. The term "critic" refers to those people who work for the media (newspapers, TV channels, radio stations, online media, etc.) and who are in charge of making comments and giving opinions about new movies that are released, which they have previously seen (Cones, 1997). Terry, Butler & Dearmond (2005); Ravid (1997); and Litman (1983) support the theory of the positive impact of the reviews on movie box office receipts, while Pangarker & Smit (2013) did not agree, as their study showed no clear positive correlation between reviews and the box office receipts of the sample studied.

If we refer to the movie industry in particular, even though it is believed that the consumer's decision process is influenced by experiential factors transmitted by the word of mouth, this influence is very hard to estimate and predict before a movie release, which contributes to increasing the commercial risk that characterizes this industry (Eliashberg et al., 2000). Nevertheless, there is some evidence that a movie's success is directly affected by the evaluation (positive or negative) given by word of mouth (Austin, 1983).

Recommendations amongst consumers are important for the success of a movie, because they consider the members of their reference groups, be they friends or family, to have more credibility than any source of information of a commercial nature (Assael, 1998).

However, in spite of the interest in this variable, in the existing literature, some reluctance is detected to empirically establish the impact of this factor, due to measurement limitations. Some authors do not include it in their models (De Vany & Walls, 1999); others establish negative correlations (Neelamegham & Chintagunta, 1999), and more recently, concrete methods of measurement have been established, such as the number of mentions a movie receives on a cinema website (Liu, 2006). In recent years, tracking engines and apps have been developed that enable us to know exactly what consumers are saying about every movie in real time, with endless features to interact with them and take part in the conversations.

Some authors like Dellarocas, Zhang & Awad (2007) focus their research on the analysis of the influence of online comments by users during the weekend of the premiere, which are of great importance in estimating the result of the movie over the medium and long term. An accurate assessment of the results of the first weekend, in addition to comments by users and critics, can predict the result of a movie in the long term more reliably than other traditional techniques.

Once the existing literature on the study of the multiple factors identified and studied as motivators in the decision by moviegoers when choosing a movie has been reviewed, our

The motivational factors are classified into the following groups: internal factors, external factors and experiential factors

research aims to use consumer statements to highlight and corroborate which of these factors are the most relevant for Spanish consumers and the extent to which they affect the movie selection.

3. Research methodology

Most studies that analyze the effects of information on the demand for movies have been carried out based on aggregate data, i.e., analyzing a series of movies, their characteristics and their box office receipts. However, this analysis does not reveal individual consumer behavior in light of specialized information and the previously identified factors of influence.

The aim of this work is precisely to bridge this methodological gap through the analysis of the effects of each of the independent variables identified that play a part in the selection of a movie to see in a theater, always from the specific perspective of the consumer. This analysis was carried out by means of a quantitative study on a large scale that enabled us to obtain information directly from the consumers, from the point of view of their behavior and without considering the box office results of any specific movie.

For this purpose, we designed a detailed questionnaire with 22 closed-ended questions that was adequately structured to provide accurate information about the influence of each of the variables identified as motivating the consumers' decision. To provide clarity and depth to the responses and thus obtain more detailed knowledge about each of the variables that are involved in the moviegoer's decision-making process, we have categorized most of the questions through multiple choice options, using a 5-point Likert scale.

The channel that most favored our methodology was an online survey, because it could be accessed by a large number of consumers in a short period of time. The survey was administered over a five-day period in May 2015. The online distribution of the survey was carried out on the CRM (Customer Relationship Management) platform belonging to Cinesa, the top movie theater chain in Spain.

Before the final survey was launched, it was subjected to two different controls: first was a review by experts that made it possible to refine any aspect related to the construction of the questionnaire; and then a pre-test was given to a sample large enough to permit the effectiveness of the survey and its correct understanding to be validated. Next, the coherence of the answers was checked, eliminating those questionnaires that had many unanswered questions or those with a large number of identical scores.

In order to access our representative segment of the population, the sampling technique chosen was the selection of a random, and thus probabilistic sample, based on the sampling frame provided by Cinesa with regard to its subscribers. This allowed us to access a specific group of moviegoers who had gone to the movies at least one time in the last year.

The survey was sent to 27,391 moviegoers in Madrid who fulfilled these characteristics, segmenting them by age, according to the same age brackets used by the EGM and with an allocation proportional to the movie consumption for each age bracket. A net sample of 5,314 individuals was obtained. The survey was simultaneously sent out to all consumers, and the response rate obtained was 19.4%.

Numerous studies sustain that in the movie market, the number of reviews and critiques of the movies is more important than their quality

4. Results of the empirical investigation

4.1. Analysis of the motivational variables

We structured the analysis of the results into four blocks of variables in order to determine the motivational value of the consumer in each. These blocks were defined according to:

1. The experiential nature of the activity of going to the movies.
2. The motivational value of the elements inherent to the movie. *Internal factors*.
3. The motivational value of the elements extrinsic to the movie. *External factors*.
4. The motivational value of the experiential elements. *Experiential factors*.

First presented are the results of the effect of the different motivational variables for the selection of movies to see in theaters, observing the sample total (see Table 1).

Table 1
Technical specifications of the sample

Universe (N)	Persons who have gone to the movies in Madrid at least once in the last twelve months
Sample design	Probabilistic
Procedure	Proportional by age
Survey type	22-question electronic questionnaire with closed-ended questions that are answered on a 5-point Likert scale
Sampling frame	270,000
Geographical scope	Community of Madrid
Sample size (net responses)	5,314
Sampling error	±1.37%
Level of confidence	95.46% ($\sigma=2$)
P/Q	Unfavorable sampling conditions P=Q=50
Time period	May 18-22, 2015

With regard to the experiential nature of the activity of going to the movies, 78.5% stated that the factor of going out and having fun is very or quite decisive when seeing a movie in the theater, and 68.9% were very or quite motivated by the social aspect of sharing the experience. This factor is one of the most important when selecting the activity of going to see a movie in a theater.

On the other hand, 68.9% of the sample indicated that their decision to go to the movies is motivated by seeing movies with other people and being able to share the experience. The emotional satisfaction that comes from sharing the experience that a consumer perceives when going to the movie theater predominates in their attitude as a very important aspect.

With regard to the motivational value of the elements intrinsic to the movie, we have analyzed the results in terms of the title, genre, director, actors, story, music, and whether it is based on a book or another movie, in order to determine the three or five factors with the greatest impact on the decision by the consumer.

Along the same lines of elements classified as external and traditionally considered to have great conversion value in this industry is the trailer

The **story** variable concerns whether the consumer knows about the topic of the movie or if it is relevant to them. In terms of this variable, the consumer is seeking quick information about what they are going to see, about what they are going to be told and whether this is pleasing to them.

If we take a look at the descriptions of the influence this factor has on the consumer's decision, we see that 92.1% of those surveyed state that the story is an element very or quite important when choosing to see a movie in a theater.

The **genre** of the movie variable is indicated by several authors as a discriminatory value in the selection of a movie (Hennig-Thurau, Walsh & Wruck, 2001; Deniz & Hasbrouck, 2012; Redondo & Holbrook, 2010; Litman, 1983); these authors use a regression analysis to see how different genres perform in the box office and which ones seem to be the most in demand.

The survey data reflect that for 88.2% of those surveyed, the genre of the movie is very or quite influential on their decision, and only 2.9% state that it is little or not at all important. Based on these results, we can conclude that the genre of the movie is a discriminating factor for moviegoers, since it provides key information for consumers to make decisions about what movie to select.

Beyond the econometric analysis of the box office value of the **actors**, our research wanted to delve deeper into whether these names become motivational factors for the consumer when selecting a movie and how and to what extent this occurs. With regards to this factor, 77.4% of those surveyed state that the actors are either very or quite important when deciding on which movie to see, while only 5.3% admit that this is not very or not at all important to them.

With regard to the motivational value of the elements extrinsic to the movie, referred to by some authors as non-experiential factors (Elberse & Anand, 2007; Moul, 2004; Lehman & Weinberg, 2000) or "studio-factors" (Hennig-Thurau, Houston & Walsh, 2007), these are those factors that do not form part of the product itself.

The **advertising** factor as a source of information that is very or quite involved in the cognitive process of the purchase decision is considered by 62.1% of the sample, and only 2.8% of the study group did not pay any attention to it.

Since it is an audiovisual product, we can verify that television commercials are the source of information that most of our survey respondents pay the most attention to, which means that this media has great value in terms of influence. The top media source declared very or quite influential in the decision regarding the selection of a movie to see in a movie theater is television (56.1%), followed by outdoor advertising (29.2%), digital media (28.8%), newspapers and magazines (20.8%) and radio (14.8%), this latter media source having the least value of influence on the decision-making of this consumer.

As shown by the responses of our survey takers to the question about the sources of information that they pay the most attention to, we see that **trailers** are the element providing the greatest value of information about the movie, making it the source of the greatest influence on the decision-making of consumers. In the results obtained, we observe that 81.9% of all respondents state that trailers are a source of information that is very or quite influential on their decision to go to see a movie at a movie theater, and only 1.1% state that they have no influence whatsoever.

As indicated at the start of the article, movies as a "product" are equivalent to the experience that comes from the act of watching a movie in a specific place and under specific conditions.

Movie theaters could increase their profits if they enacted variable pricing policies

In this sense, we wondered whether this experience that the consumer has is worth the **price** paid to see the movie. 30.1% of our sample state that the experience is worth the price they pay, while 57.2% state that the experience is not worth the price they pay and only 12.7% are of the opinion that the movie experience is worth more than the price they pay.

With regard to the motivational value of the experiential factors, if we consider the sample as a whole, 64.2% of those surveyed state that comments by friends and family have a great or fairly great influence on their decision to choose a movie.

In turn, and in line with some of the authors previously mentioned (Reinstein & Snyder, 2005), **reviews by professionals** reveal a relatively low level of impact as a whole. The statistical data reveal that these opinions have a lot or a fair amount of influence on only 38.7% of the total sample.

With regard to **movie awards**, we could consider that they are a factor external to the movie that give it an extra extrinsic characteristic; however, as we have seen in the theoretical review, the awards are the product of the ratings by critics, scholars and the public (Deuchert et al., 2005; Terry et al., 2005; Pangarker & Smit, 2013). These comments come from people who have seen the movie, and therefore they take on an experiential value and function as such with regard to moviegoers (Henning-Thurau, Wiertz & Feldhaus, 2012).

The American Academy Awards, the Oscars, reach the highest level of importance in the sample total. In terms of this award, more than 50% of those surveyed state that the fact that a movie has won an Oscar has an influence on them when it comes time to select a movie.

For a better visual idea of the main results, Table 2 summarizes the percentages of each of the variables identified as most important in the decision to go to the movies or about the movie to see at the movie theater.

Table 2

Most important variables in the decision to go to the movies and select a movie

	Variables	Not at all	A little	Neutral	Quite a bit	A lot
		%	%	%	%	%
The experiential nature of the activity of going to the movies	[Going out and having fun]	1.3	4.1	16.1	52.6	25.9
	[Seeing movies with other people and sharing the experience]	3.1	9.1	18.9	45.7	23.2
Motivational elements: intrinsic factors	[The story]	0.5	1.2	6.1	44.8	47.3
	[The genre]	0.7	2.2	8.9	52.4	35.8
	[The actors]	1.6	3.7	17.4	51.8	25.6
	[The director]	12.7	21.8	32.2	25.1	8.2
Motivational elements: extrinsic factors	[Advertising]	2.8	10.8	24.3	51.0	11.1
	[Trailers at the movie theater]	1.1	3.8	13.2	46.1	35.8
	[The ticket price]	1.0	1.6	6.7	26.1	64.5
Motivational elements: experiential factors	[Having won an Oscar]	11.1	10.2	27.4	34.8	16.6
	[It was recommended to me]	3.1	9.9	22.8	46.0	18.2
	[Reviews by professionals]	14.9	19.0	27.3	26.9	11.8

Source: authors' own work.

In most of the studies reviewed, experiential factors are the ones that tend to have the least influence on the consumer's decision

4.2. Clustering

In the second phase of the results analysis and given the magnitude of our survey and the large amount of data available on more than 5,000 consumers, we opted to use a clustering model. First of all, we proceeded to use Ward's method of agglomerative hierarchical clustering, the dendrogram of which suggested the number of existing clusters. In a second step, a non-hierarchical K-means clustering was performed to define the previously identified clusters. The selected variables are shown in Table 4.

The data observed in the resulting dendrogram show two clearly differentiated clusters, the composition and characteristics of which are significantly different. The ANOVA analysis reflects the results of the F test with an excellent level of significance, which indicates the adequacy of the test.

The relative size of the groups according to the total number of cases in the sample is fairly balanced, with 2,439 units in cluster 1 (C1) and 2,874 in cluster 2 (C2).

Table 3

Number of cases in each conglomerate

Conglomerate	1	2439.000
	2	2874.000
Valid		5313.000
Missing		0.000

Source: Authors' own work, using SPSS v.22

The next step was to conduct a non-hierarchical K-means cluster analysis to define the components of each of the two clusters identified. The solution provided by the K-means analysis converged in 10 iterations, providing an ANOVA F-test value with optimal levels of significance (0.000) for all variables considered (Hair, Black, Babin & Anderson, 2010).

Once the two groups were identified, we proceeded to observe their behavior with regard to each of the selected variables, with the aim of being able to assign a name or designation to each group, according to the behavior reflected with respect to the motivational factors when it comes to going to the movies, which is the main objective of this research.

In the discriminant analysis, the results obtained from the classification matrix validate the method, correctly assigning 96.5% of the cases in the original validation and 96.2% in the cross validation, which demonstrates the robustness and validity of the groups or conglomerates identified by the cluster analysis.

The results obtained from both the Box's M test and Wilks' lambda statistical value confirm the existence of two groups defined by the K-means conglomerate analysis. In the clustering of our sample, two clearly different groups were identified that were statistically validated, with a high level of predictive power (>96%). Using the nomenclature usually used in this industry, in our study we have designated Cluster 1 (C1) as ACTORS and Cluster 2 (C2) as DIRECTORS, given the weight of each of the motivational variables in both groups (see Table 4).

Table 4

Final conglomerate centers and means per cluster

Final conglomerate centers	Conglomerate*	
	C1: ACTORS	C2: DIRECTORS
Once you have decided to see a movie in a movie theater, what motivated your decision and to what degree? [Going out and having fun]	3.83	4.10
Once you have decided to see a movie in a movie theater, what motivated your decision and to what degree? [Seeing movies with other people and sharing the experience]	3.51	3.99
Once you have decided to see a movie in a movie theater, what motivated your decision and to what degree? [Seeing movies on the big screen]	4.09	4.39
Once you have decided to see a movie in a movie theater, what motivated your decision and to what degree? [Seeing something that my friends are talking about]	2.22	3.03
Once you have decided to see a movie in a movie theater, what motivated your decision and to what degree? [Break away from the routine]	3.06	3.69
Once you have decided to see a movie in a movie theater, what motivated your decision and to what degree? [Going to the movies makes me feel better about myself and enriches me as a person]	2.86	3.68
Do you think that when buying a movie theater ticket to a certain movie, your choice is influenced by the advertising you have seen for that movie?	3.29	3.81
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [TV commercials]	3.08	3.77
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Radio ads]	1.89	2.74
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Comments by friends or family]	3.27	3.99
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Internet (specialized web pages, websites, blogs, forums, etc.)]	2.96	3.77
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Internet ads]	2.36	3.29
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Social networks (trailers, content, etc.)]	2.69	3.60
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Newspaper or magazine ads]	2.07	3.05
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Posters or displays inside the movie theater]	2.72	3.53
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Trailers in the movie theater]	3.83	4.36
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Street advertising (marquees, billboards, buses, etc.)]	2.48	3.35
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Interviews with actors, directors]	2.14	3.29
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Reviews by professionals]	2.46	3.49
In general, how do you think each of these sources of information influences your decision to go see a movie in a movie theater? [Articles other than reviews in newspapers, magazines, Internet or TV]	2.29	3.36
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [The title]	2.60	3.23
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [The genre]	4.11	4.28

Table 4 (continued)

Final conglomerate centers and means per cluster

Which of the following elements are important when choosing a movie at a movie theater and to what extent? [The director]	2.94	3.64
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [The actors]	3.66	4.21
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [The story]	4.23	4.49
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [The music]	2.54	3.21
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [It seems good in the advertisements]	3.15	3.79
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [My friends want to see it]	2.59	3.40
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [It was recommended to me]	3.41	4.07
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [It is based on a book I read]	3.18	3.89
Which of the following elements are important when choosing a movie at a movie theater and to what extent? [It belongs to a saga]	3.34	3.84
How and to what degree do the following movie genres draw your attention? [Action/Adventure]	4.17	4.24
How and to what degree do the following movie genres draw your attention? [Suspense/Thriller]	3.90	4.19
How and to what degree do the following movie genres draw your attention? [Science fiction]	3.71	3.73
How and to what degree do the following movie genres draw your attention? [Horror/Scary movies]	2.56	2.77
How and to what degree do the following movie genres draw your attention? [Comedy]	3.85	4.15
How and to what degree do the following movie genres draw your attention? [Animation]	3.23	3.49
How and to what degree do the following movie genres draw your attention? [Drama]	3.02	3.61
How and to what degree do the following movie genres draw your attention? [Historical]	3.19	3.60
How and to what degree do movie awards influence your decision? [Having won a Golden Globe influences me]	2.42	3.58
How and to what degree do movie awards influence your decision? [Having won an Oscar influences me]	2.72	3.89
How and to what degree do movie awards influence your decision? [Having won a Goya influences me]	2.29	3.46
In general, how influential is the duration of a movie when you choose to watch it in a theater? [I prefer for a movie to last 60-90 minutes (an hour/hour and a half)]	2.39	2.82
In general, how influential is the duration of a movie when you choose to watch it in a theater? [I prefer for a movie to last 90-120 minutes (an hour and a half/two hours)]	3.22	3.64
In general, how influential is the duration of a movie when you choose to watch it in a theater? [I prefer for a movie to last 120-150 minutes (more than two hours)]	2.64	2.94

*5-point Likert scale, where 1 is very unimportant and 5 is very important as a factor for decision-making.

Source: Authors' own work (SPSS v.22).

The previous table (see Table 4) shows that Cluster 1 (called Actors) scores lower than Cluster 2 (called Directors) in every selected variable (intrinsic, extrinsic and experiential). We will analyze each of the groups in detail in the following section, giving percentages that make it easier to understand these differences.

The influence of the experiential factors transmitted by word of mouth is very difficult to estimate and predict prior to the premiere of a movie

4.3. Analysis of Typologies: Actors and Directors

As mentioned earlier, the clustering of the results of our research confirmed the existence of two groups of consumers with a significant difference between them and a high predictive level (see Table 4). These two groups of consumers have been called ACTORS and DIRECTORS, and the differences between them are not of a socio-demographic nature, but rather the results of our study show that they have more to do with the decision-making process when selecting a movie to see in a movie theater.

As we have already seen, both groups are very similar in terms of size and, in addition, according to the demographic variables studied, both groups are homogeneous with regard to age and level of education (slightly higher for the Directors group). Nevertheless, we find a significant difference in the gender variable, with one group having a more female component, namely, Directors (61% women); on the other hand, the other group, Actors, is more masculine (52.81% men).

Regarding cultural and leisure habits, both groups recognize that their favorite leisure activities are listening to music, seeing movies at home and going out with friends. The Actors group (C1) shows a greater inclination to play videogames than the Directors group (C2). The latter group claims they go to the theater or live concerts more often than the former group. With regards to these leisure activities, the Directors group (C2) states that they spend more money than the Actors group (C1).

Thus, the members of the Actors group (C1) in our research are influenced by a limited number of factors when making their decision, and they have no need to turn to additional sources of information. This consumer-moviegoer is focused on a part of the work and does not need to be in control of the entire work. Their level of involvement in the production and in the decision is partial and limited. Hence, the moviegoer in this group exercises a simpler decision-making process, taking some elements of the movie as heuristic principles that allow him/her to make a decision without taking many more variables into account.

In turn, the Directors group (C2), given this name as an analogy to a person who directs the filming of a work and each of its elements, also assuming all the other functions that are necessary for a successful conclusion to the filming process, is a group made up by a type of moviegoer who is more involved in the decision-making process, who needs to see and analyze various elements before making the final decision. Therefore, their decision-making process is more complex, because it takes into account many additional factors that affect the final result of the production.

We are now going to analyze each of the factors studied (intrinsic, extrinsic and experiential), observing the response level for each group, in terms of percentages. With regard to the most influential **intrinsic factors** in choosing one movie over another, members of the Actors group prioritize the story over other factors, such as the trailer, genre or actors.

Members of the Directors group, on the other hand, agree on the influence of the story as determinant in their interest in a movie, but this group also identifies genre as a decisive factor and agrees with the Actors group in terms of their predilection for the adventure and comedy genres.

Regarding the actors variable, the Directors group places a lot of value on the presence of famous actors in a movie in order for them to consider it (88%), so the indifference in terms of percentage for this value is 11.7%, far from the levels of indifference (35%) expressed by

An accurate assessment of the results of the first weekend, in addition to comments by users and critics, can predict the result of a movie in the long term

the Actors group. On the contrary, intrinsic factors like the title or music are the ones that show a value indicating less importance for both groups.

According to the data obtained, members of the Actors group assign the highest level of influence to a few specific intrinsic factors, and these are enough to make the decision when choosing a movie. Meanwhile, the Directors group needs to use other sources of information and to assess other elements in order to make their decision. The decision-making process of the latter group means that they appreciate the influence of factors that are external to the movie.

Within the **external factors** studied, members of the Directors group value the advertising campaign as a relevant source of information to make a decision about the movie they will watch. More than 72% of the members of the Directors group give a lot or a fair amount of importance to this factor, while only 49.4% of the members of the Actors group consider it quite or very important.

In relation to how the different advertising media influence the decision of going to see a movie, the Directors group shows significant differences with regard to television, and particularly to trailers. With reference to the latter factor, among the factors studied, members of the Directors group assign the highest level of importance to the trailer.

The Directors group pays significantly greater attention to **experiential factors**. Not only do 73.3% of this group state that they always recommend a movie when they like it, as opposed to the intention to recommend a movie expressed by only 53.5% of the Actors group, they also recognize that the recommendations of other individuals are influential factors in their decision to a greater extent than the Actors group.

In their more elaborate decision-making process and given their higher level of involvement, members of the Directors group seek out additional information that helps them make a decision. 53% assign a score of very or quite important to the opinion of critics, while only 21.6% of those in the Actors group believe that reviews by a professional influence their selection of a certain movie.

As seen before, comments by friends and family play a very direct role in the consumer's decision, due to the value and credibility that they assign to comments from persons with whom they share a relationship. In our research, both groups show average values with regard to this factor and there is a clear differentiation between the two groups. Members of the Directors group are very open to listening to comments from other individuals who have already seen the movie, and 77.9% state that this influences them quite a bit or a lot, as opposed to 48% of the Actors group, who assign the same value.

As occurs with the recommendations factor, the Directors group demonstrates a significant difference with regard to awards. Nearly 70% of this group consider that a prestigious movie award adds quality and differentiates a movie from the rest, helping them to make a decision in favor of award-winning movies. The Actors group appears to be less influenced by this variable, since only 30% assign it this level of influence on their decision.

5. Results

The results of our study confirm the belief that the goal of going out, having fun and having a good time in a group is one of the top motivations for a consumer to decide to see a movie in a movie theater, given the social component of the activity. This differentiation between a

92.1% of those surveyed state that the story is an element that is very or quite important when choosing a movie to see at the theater

behavior based on utilitarian components and another based on hedonistic values, such as going out and having fun, coincides with studies presented by various authors (Holbrook & Hirschman, 1982; Faber & O'Guinn, 1984), enabling us to conclude that this is a hedonistic behavior by moviegoers, motivated by the quest for pleasure and enjoyment.

But in light of this motivation by the consumer to satisfy the need for a pleasurable experience, moviegoers are faced with a decision-making model with varying levels of complexity, in which motivational variables of different natures and magnitudes play a part, according to the information they receive about the movie.

In conclusion, of all the variables presented to the consumer, **genre** is one of the variables that the authors agree has the most value as a factor of influence on the consumer's decision. It is often a discriminatory factor by itself. A consumer who is not a fan of horror movies will not consider many more factors before making the decision not to select a movie belonging to this genre.

The component of familiarity with the genre as a facilitator of the decision-making process due to the amount of decisive information it provides also applies to the case of the **story** factor. The results of our field work confirm that the story variable is among the ones with the greatest impact on the selection of a movie by a consumer (92.1%). As part of the decision-making process, consumers clearly pay attention to this factor, which acts as an interest activating mechanism for a particular movie.

Another intrinsic factor examined by many empirical studies is the value of the **actors** in the movie. The conclusions we obtained about this variable in our field research are that from the consumer's perspective, and through the analysis of how they process the different informational inputs they receive in order to select a movie, the actors factor holds an important position in the moviegoer's decision-making process, showing high percentages of preference (77.4%). In fact, it is one of the intrinsic factors with the highest position, after the story variable. It is interesting to note, however, that one of the two groups into which the results have been discriminatorily placed (C1) shows a higher degree of indifference, as seen earlier in the analysis of the consumer typology.

6. Conclusions and implications for management

We can conclude that the data obtained in our study, both documentary and empirical, support the hypothesis regarding the importance of elements inherent to the movie in the decision-making of consumers, in particular, story and genre, which sometimes act as sole exclusionary factors (genre), and with noticeable importance (story) as elements in the purchasing decision made by the consumer.

Both variables are connected to the cognitive process of the purchase decision, since they provide information for the consumer that is useful when collecting information about the product they wish to buy and both provide qualitative information about the potential interest in the movie for the moviegoer, thus facilitating their decision.

The first extrinsic factor, and perhaps the one with the greatest impact and consideration by research, is the advertising campaign that is designed to launch a movie. It is a variable with great economic magnitude, which in turn entails a large risk, since it requires the investment of a large percentage of the budget before the movie has premiered, with a small margin of maneuverability to adjust it if the movie does not have the desired results during the first

For 88.2% of those surveyed, the genre of the movie is either very or quite influential on their decision

weekend after its release. Within the sources of information is a very characteristic element in this category, which is the trailer. Consumers pay a lot of attention to it as a source of valid information when making their selection.

Both the recommendations of critics and those of friends and relatives and the movie awards give an additional positive value to the movie. However, we ascertained that the influence of these variables on a consumer's decision reaches limited levels in general, and only if we disaggregate the data into groups do we reach a higher level of significance. For this reason, the results of our study have not been able to demonstrate the value that these factors have in most cases as motivators of the consumer's decision and selection, as supported by authors such as Eliashberg and Shugan (1997). We were unable to positively demonstrate that they are the factors with the greatest influence over other non-experiential factors, since high levels of indifference were observed in this regard, especially in the Actors group, as we mentioned earlier.

With these results, we can conclude that it has been demonstrated that both the factors intrinsic to the movie (story, genre and actors) and external factors (advertising, trailer, and price) play a very important role as motivators of interest by the consumer in a certain movie and their interest in seeing it. Likewise, going out and having fun have been shown to be the main objective of consumers when seeing a movie at a movie theater.

Just the opposite, it has also been demonstrated that not all experiential factors have such a significantly influential effect on the consumer's decision-making process. While comments by friends and family members are significant when exerting an influence on the decision-making of many consumers, the opinion of critics and the recognition earned through movie awards have controversial results.

Likewise, one very interesting result of this study is the existence in our representative sample of two heterogeneous behaviors in terms of the decision-making process: *Actors and Directors*. The cluster analysis enabled us to identify these two groups and the discriminant analysis showed a high predictive power for both groups, as seen in the previous section.

If we specify the statistical data analysis by group, we find a specific snapshot of the characteristics of each of the two groups. This allows market agents to activate certain actions to affect the behavior of a particular group, or both of them at the same time, but with the knowledge of the differences in the factors that motivate the behavior of each group.

The managers and distributors in the movie industry should take into account that there are two very different groups of consumers. The analysis of the influence of each factor on the behavior and the study of the motivational behavior of individuals allows us to conclude the existence of the following two groups defined below:

1. The **Actors** simplify their decision-making, making it more personal and individualized, based on a few specific factors (the story, the action-adventure genre and watching the movie on the big screen). These factors form part of the internal qualities of the movie, and consumers turn them into heuristic elements of their decision. We are talking about a simpler and more individualistic consumer in terms of their decision-making process regarding the movie they want to see in the movie theater.
2. The **Directors**, apart from directly valuing the intrinsic qualities of a movie, are open to stimuli and external communications actions and seek social endorsement through

With these results, we can conclude that it has been demonstrated that both the factors intrinsic to the movie (story, genre and actors) and external factors (advertising, trailer, and price) play a very important role

recommendations, reviews and awards, before selecting the movie they want to see. We are talking about a complex, social and involved consumer, as can be seen in the large number of variables they consider important when deciding to see a movie in a movie theater.

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Strategic Orchestration as a driver to create new shared value

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Abstract

The purpose of this article is to provide an enhanced approach on how organizations and individuals can create shared value through strategic orchestration or collaborative innovation, to help create system change. The world's most vital resources and systems are facing unprecedented challenges that will require a new level of thinking and doing to solve them. How to apply it to our own system in practice? Studies show that after having identified the need for innovation, orchestration enhanced with a shared value approach aims to be a strategy for organizations to provide new value propositions to the market that cannot be delivered in isolation while addressing a societal need. Social needs still represent the largest unserved opportunities. Some nowadays examples are Smart Mobility solutions and Microfinance institutions, where technology plays an important role. It is fascinating to see new innovations increasingly addressing a societal need while bringing a new offering to the market.

Key words

Collaborative innovation, smart cities, societal need, microfinance, system change.

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The current trend is to make business a force for good by creating economic wealth while addressing a social need

1. Introduction

Have you ever experienced the emotion when a professional or personal project that you started alone undergoes a unique transformation by inviting new partners on board? ...This is the essence of Strategic Orchestration (Ruelas-Gossi & Sull, 2006). The aim of this article study is to provide organizations and individuals with an enhanced approach on how to fuel growth and profitability through new orchestrated solutions (Ruelas-Gossi, 2012). Orchestrated solutions go beyond the typical incremental concepts like: cost reduction, customer satisfaction or competitive advantage. In some cases the network creation process is enhanced when a social need gets addressed as part of the solution. Societal needs still represent the most unserved market opportunities (Porter, 2016). In that case we say that we are not only bringing a new solution to the market but also creating shared value (Porter, 2016).

It is not so easy to have innovation and creativity emerging naturally in organizations or in individuals. A linear, logic-analytic thinking is still very much imprinted in our mindsets. A circular or systemic thinking seems to be a much more suitable approach to succeed in nowadays business arena. System innovation is a relatively complex form of innovation and can only be successful with the cooperation of all stakeholders. It stresses that the flow of technology and information among people, enterprises and institutions is key to an innovative process. It contains the interactions between the actors needed in order to turn an idea into a concept, product or service on the market (The Guardian, 2014). It often tackles problems that are systemic in nature, such as the world's big sustainability challenges, urban mobility, fair access to finance or healthcare. It involves many actors of all kind from businesses to NGOs and governments and often takes a long term view (OECD, 2013).

In this study we will analyze collaborative or system innovation, as a major lever for new value creation and to implement change. Strategic orchestration would be the tool to be used by organizations and individuals to assemble and lead a network of partners to deliver together a new value proposition to the market that cannot be delivered in isolation by the partners of the network. In the cases where a social need is addressed as part of the value proposition, we will also create shared value.

2. Strategic Orchestration to create shared value

2.1. Strategic Orchestration

Strategy is not about being efficient or improving the current game. Strategy is about making choices (Porter, 2016) and changing the game (Ruelas-Gossi, 2012), a common denominator of successful firms (Ruelas-Gossi, 2012). Strategic Orchestration is said to be a new paradigm of strategy (Ruelas-Gossi & Sull, 2006). It means to coordinate resources, e.g. typically partner organizations or departments, but also can be clients, competitors or end users, in order together to provide a unique and novel value proposition to the market, that would not be possible to delivered by an organization alone.

It is an allocentric approach (Sull & Ruelas-Gossi, 2010), which means that it incorporates the various resources in the network. Most existing strategy theories are egocentric. Its starting point is an egocentric approach, where the power is the individual firm that exists to create and capture economic value, often at the expense of other players in the value chain. The firm focuses solely on opportunities it can seize alone. The allocentric orientation allows managers to seize a whole range of opportunities that can only be pursued by a network. As such, unlimited opportunities are there for nowadays leaders to create new value, as long as there is

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collaboration between the players in the network and the value proposition is orchestrated in a manner that makes it worthwhile for everyone to participate.

The power needs to be exercised through influence and diplomacy (Sull & Ruelas-Gossi, 2010). All players have to give and receive. If they do not receive, they will leave the network.

The orchestration approach begins with a different set of assumptions. Firms create value by assembling novel combinations of resources that fulfill an unmet customer need. The nodes of a network are the individuals, business units or companies that control relevant resources and make them available for use to fill an unserved need in the market. The network has to be easy to use for the end user, but as complex and difficult as possible to replicate for the competition.

Strategy Orchestration provides the strategic direction to nowadays' leaders on how to create and coordinate a network and on how to lead the partners in a novel way in order to seize opportunities that others do not see (Ruelas-Gossi & Sull, 2006). This is a crucial component when the goal is agility rather than efficiency (Ruelas-Gossi & Sull, 2006). Every network is unique and is there to expand value. The expansion of value, by adding nodes or partners to the network, is created in the context of the business model innovation, different to the product innovation more in alignment with the value chain theory, where the referral is to create value through efficiency often removing elements from the chain in order to make it more profitable (Ruelas-Gossi & Sull, 2006).

2.2. Creating shared value

As an additional and distinctive attribute to the creation of a network is the shared value concept, where a societal need is addressed in the value proposition.

Societies everywhere are facing significant social, environmental and economic development challenges. Government and NGOs lack sufficient resources and capabilities themselves to fully meet these challenges alone. Only businesses can create the necessary economic prosperity, through meeting needs at a profit (Porter, 2016).

Philanthropy and Corporate Social Responsibility (CSR) have evolved the concept towards Creating Shared Value (CSV), where societal needs and challenges are being addressed through businesses in partnership with different stakeholder with a new business model that requires the orchestration of nodes and with the ultimate goal of making a profit. The objective is to expand opportunities for the business at the time of meeting a societal need (Porter, 2016) without forgetting that social needs represent the largest unserved market opportunities (Porter, 2016).

Companies are more and more going towards a collaborative environment, that help them rethink the business around unsolved customer and societal problems and needs and to identify customer groups that have been poorly served or overlooked by the industry. This re-thinking has to start with no preconceived constraints about product attributes, channel configuration or the economic model of the business. And the interaction between people from different industries or departments has to enhance the creation of an environment where new ideas can emerge (Porter, 2016). To incorporate the shared value concept and increase their profit, organizations have to think in terms of improving lives, not just meeting conventional business goals or social needs (Porter, 2016).

NGOs leverage the private sector to dramatically increase scale and impact. Often businesses need to partner with NGOs to implement shared value solutions. They combine

The biggest gains are often the hardest to unlock

complementary strengths. The NGO funding concept also is shifting from grants and donations to fees for services provided to a business (Kramer, 2016a). The Role of Government is to regulate and operate in ways that enable and motivate shared value solutions (e.g. tax policies that support market solutions, business incentives, co-financing, etc.); and to create the essential supporting infrastructure to help this shared value initiatives to emerge (Porter, 2016). The new purpose in business is to create economic value in a way that also creates shared value for society. Businesses acting as businesses, not as charitable givers, are the most powerful force for addressing many society's pressing issues. The innovation departments of the organizations will be the platform that enables the environment for new ideas to emerge, breaking traditional boundaries and serving as the accelerator to bring those ideas into action.

Strategy is the set of long term choices that an organization makes to distinguish itself from competitors (Kramer & Porter, 2016). Strategy defines a company's distinctive approach to competing, and the competitive advantages on which it will be based. Realigning companies around shared value opens up major strategic opportunities to create competitive advantage and expand value, while giving greater purpose to the corporation and to capitalism itself (Porter, 2016). The biggest gains are often the hardest to unlock. Many market failures are caused by default in the operating environment. Orchestrating a whole network of partners while improving the societal conditions in the operating environment is the aim of the creating shared value strategy (Kramer, 2016b). To have collective impact involves orchestrating different elements of all stakeholders in the system or network (Kramer, 2016b). It follows the same steps as strategic orchestration, enhanced by addressing a societal need (Kramer, 2016a).

3. Orchestrated examples that create shared value

The need to find new responses to old questions has led organizations to look for new ways of generating value. Since then, every time more examples of orchestrated solutions solving a social need can be found. We will analyze in this paper a transportation solution for Smart Cities and the role of microcredit institutions as orchestrated examples to create shared value.

3.1. SmartMobility for Smart Cities

A SmartCity is said to be an urban area that creates sustainable economic development and high quality of life by excelling in multiple areas: economy, mobility, environment, people, living and government (IEEE Smart Cities, 2015). Excelling in these key areas can be done through strong human and social capital, often helped by the use of ICT –Information and Communication Technologies– and IoT –Internet of Things– (Libelium, 2017) infrastructures (IEEE Smart Cities, 2015).

Urban Mobility (US Department of Transportation) is one of the intractable challenges faced by city governments, presenting economic, social and environmental implications. Before the Smart City time, the municipalities did not have suitable solutions to provide a coordinated incident response in case of a traffic event (IEEE Smart Cities, 2015). Someone's commute is always seen as the worst part of their day and a negative experience. So, if a SmartMobility solution would help them turn this negative into a positive experience, people normally are willing to pay (Schneider Electric, 2015). In addition, municipalities need a solution that will gather the information of all traffic and transportation agencies in the city, that will enable them to make a global and efficient management of the whole transportation network with coordinated incident response procedures to reach out to all transportation providers in case of an event (Schneider Electric, 2015).

**System
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all stakeholders**

Before, municipalities were also able to see the transport information of the different transportation agencies, but separately. That transport information was not coordinated. It happened frequently that when an event took place in one part of the city, the agency in charge of it managed the incident correctly, but the rest of the transportation agencies were not aware, resulting in massive traffic congestions. The municipality did not have coordinated response plans available to act upon at global level. Out of necessity, the different transportation stakeholders understood the need of coming together and create a network to serve the new needs of the municipality.

The governance of the network required a light touched guidance of the stakeholders (Schneider Electric, 2014) and shows another fascinating facade of the fact that only an orchestrated solution is viable to bring all the partners on board and to make it profitable for all. As we said before, in any network every node has to give and receive, otherwise they will leave the network (Sull & Ruelas-Gossi, 2010).

The example we are going to analyze is about the transportation solution orchestrated by a multinational company guiding a network of partners to help the municipality of one big city in South Brazil to improve their urban mobility and livelihood while enhancing the lives of some of their citizens. Before this, the traffic in the city was completely disorganized and big traffic congestions were daily there. The main nodes that were part of the SmartMobility solution of this example were as follows:

- Traffic and Transportation Providers: city transportation agencies in charge of the metro, bus, road, train, etc. (competitors among each other, but nodes of the network);
- Generic Information Providers on travel times or parking occupancy estimates (suppliers);
- Hardware/Software Cots Providers for basic components to support applications and services (common supplier);
- Collaborative users give row data provisioning in exchange for limited free services (Uber taxi);
- Electric Cars to cover the first mile-last mile and to complete the transportation cycle (partner); this car was produced in the suburbs of the city by disadvantaged groups.
- Academia through the design of the Electric Car in the Media Lab of a reputed University (partner)
- Electric GPS and Sensor providers (Internet of things) to measure and get analytics on the uses (suppliers).

Strategic Orchestration was used to bring all these stakeholders together, in order to provide the Municipality with the right tool to solve the urban mobility challenge. The SmartMobility solution also included decision support system plans to provide the municipality with a multiple choice of coordinated incident response plans to solve the event. One relevant aspect of the SmartMobility solutions, like the one we are analyzing in this example, is the fact of bringing not only conventional partners, but also competitors into the network in order together to provide a solution to the market that could not be provided individually. The main transportation agencies in the city in charge bus, metro, road and train are individual suppliers to the Municipality. Even more, they are most times competitors to each other bidding to provide the same service. These services normally are granted for a certain number of years until a new call for proposals is open. The higher need of the Municipality to not only liaise with each of the individual transportation suppliers, but to have a coordinated response mechanism to act upon at global level in case of an event, made all these agencies to come together in an orchestration in order to serve the higher goal of the Municipality, that any of them could provide on its own. As nodes of the network they contributed to it adapting their

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IT systems for them to be synchronized for the Municipality to have coordinated information. They have also benefited from the network by being the first in serving the Municipality in its global response need. This has made them powerful partners of the Municipality, making it difficult for other organizations outside the network to replicate a similar service and subsequently eliminating competition. As a result of that, a longer relationship with the Municipality is envisaged.

Technology has been key for this SmartMobility solution, going from the gathering of information through sensors and data analytics to the set-up of the right information technology structure to disseminate and reach out to all stakeholders in the network, from the Municipality to the end user. In this network we can also find a shared value component. The first mile-last mile electric cars included in the network were produced in the suburbs of the smartcity by local disadvantaged groups. Through training and employment of those people they were able to build the cars locally. Given the lower labor costs in Brazil compare to Europe, where the electric car company was headquartered, it was possible to make a higher profit by not having to relocate technical staff to the region. As a result of this, the image of the whole network got significantly enhanced by having addressed a societal need. And overall, the lives of those group of people were significantly improved.

3.2. Microfinance institutions

Poverty is the main cause of concern in improving the economic status of developing countries. Microfinance is increasingly being considered as one of the most effective tools of reducing poverty. A microfinance institution is an organization that offers financial services to low income populations (Microfinance and Microcredit, 2017). A great scale of organizations is regarded as microfinance institutes and increasingly various types of institutions, ranging from commercial banks to NGOs or sectors of development banks, offer microfinance (International Finance Corporation, 2015).

Impact investment is an increasing activity and is seen as the next stage in development aid. Therefore, many non-profit organizations are incorporating an investment institution within their structure in order to address the unserved need of providing financing to disadvantage groups in fragile and conflict areas (Cordaid, 2016a). These investment branches sit in a different legal entity than the non-profit organization. There is a change in status from an unregulated non-profit or non-governmental organization into a regulated, for-profit institution. This regulated organization differs from the non-profit organization in that they are held to performance and capital adequacy standards and are supervised by the national authority for financial markets, typically the central bank of the country where they are registered. These microfinance institutions also attract equity investors, who want to ensure that the value of their investment is maintained or enhanced.

These institutions are a powerful arm to the non-profit organizations they serve, helping them manage their social impact investment portfolio. Instead of providing grants, as the non-profits would do, these institutions provide support and access to inclusive finance to small entrepreneurs, impoverished women, people with not adequate working conditions and poor individuals in fragile and conflict-affected areas, that have limited or no alternative investment possibilities in the commercial banking system. They provide the finance in the form of loans, guarantees or taking over equity of social entrepreneurship initiatives (Microfinance and Microcredit, 2017), being a revenue line for the non-profit organization.

The example we are going to analyze in this case is a funding initiative to small entrepreneurs in rural areas of Nicaragua, orchestrated by the investment branch of a non-profit

Microfinance helps bridge the gap between financial institutions and the rural poor

organization. The whole lending process on field is facilitated by the use of a technology App (Cordaid, 2016b). The App was installed in the tablets the credit officers carry to the field. It enabled the local microfinance institution to register credit applications and manage client relationships digitally. Thanks to this App, the rural entrepreneurs do not need to travel and be bothered with extensive paperwork, making the whole process of credit application, authorization and renewal much more efficient and effective. Before this, the financial intermediary institution in Nicaragua had to do the whole lending process manually on paper, from the application to authorization and renewal, requiring often the borrower to go to the offices of the lender in town, making it more difficult for the farmer to have access to finance and taking long time until the money was deposited.

The main nodes that are part of the microfinance network of this example are as follows:

- Non-profit organization: mother company with the ultimate goal of improving the lives of low income population;
- Investment branches of the non-profit organization: the operational vehicle to legally exploit the financial business for the non for profit to invest in fragile and conflict areas;
- Local financial intermediaries or field partners: every country has its own lending regulations to protect the end user. Therefore, microfinance institutions need to partner with them in the countries they want to operate to reach the end user.
- Technology suppliers: a special app designed to facilitate the lending process;
- Credit Officers: last part of the chain and in direct contact with the enterprising borrower. For them the app has eased significantly the lending process, doing the application, authorization and renewal digitally directly on the tablet on field, and receiving the funds shortly after in their bank accounts;
- Small entrepreneurs in rural areas (client): end receivers of the money

Microfinance helps bridge the gap between the formal financial institutions and the rural poor. It has become a relevant revenue stream for many non-profit organizations and a tool to generate income to serve their goals. It requires the orchestration of different stakeholders to achieve the money to reach their end destination.

Every country has its own lending regulations to protect the end user. The investment branch of the non-profit organization only has the license to operate as a lender in the country where it is registered. Therefore, they need to partner on the field with locally registered financial intermediaries, who will be their operating arm in those countries to give out loans. This way the funds can reach their target audience while ensuring the end user rights are secured and the financial standards of the country met.

The orchestration in this case comes mainly from the need of the non-profit organizations, their investment branches and the field intermediaries to come together in order to make a business that would not be possible to be done by any of them alone. In the network they also count with apps and technology means that ease and ensure a sound and agile lending process with real time credit information and replacing papers approvals by digital ones.

There is also shared value component in this network. Microfinance grants disadvantaged groups a fair access to finance, whilst helping build financial and entrepreneurial capacity in the borrowers. They have to repay the loan. It is no longer a grant. So, they have to manage their business initiative with care, in order to be able to return the money. The non-profit organizations have seen this business potential of having an additional revenue stream by lending money through their investment branches to the bottom of the pyramid, whilst

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continue serving their ultimate goal of improving the lives of the disadvantaged groups. They mobilize resources to the poor for viable income generation micro enterprises enabling them dignified access to funding to reduce their poverty and this way they are creating shared value.

4. Conclusion

In a world that is rapidly changing, where relationships are no longer linear but circular, orchestration, collaboration and system innovation (The Guardian, 2014) seem to be key for the growth of any organization. Often this growth potential can be found while addressing a societal need, subsequently creating shared value for the organization and the society as a whole.

Often, innovation is associated with blue-sky thinking or extraordinary outrageous ideas (e.g. Facebook, Google). Everything starts with seizing an idea to address an unserved customer need. Sometimes there are incremental innovations, layer by layer, by implementing sequential and layered designs that connect to deliver a better whole (LaRusso, Spurrier & Farrugia, 2014).

As analyzed in this research study, orchestration or collaborative innovation seems to be a rather suitable strategy for today's environment to manage innovation. In most cases, except when an exceptional idea creates a totally disruptive new concept, innovations in the business model, bring a much greater differentiation to the offering than any incremental product innovation. And strategic orchestration is about innovation in the business model. Strategic Orchestration, partnering or collaborative innovation teaches us that there is not always money, new technological features, or awesome radical ideas available to boost a great project, but there are always nodes ready to be orchestrated around a new challenge in order to create a unique and novel value proposition to the market that cannot be provided in isolation (Sull & Ruelas-Gossi, 2010).

As we can see in the SmartMobility and the Microfinance institutions examples, the main driver for both to enter into an orchestration was the ultimate need to partner in order to make the new business proposition happen. New value propositions require new business models, that cannot be delivered by an organization alone. The value proposition is orchestrated in a manner that makes it worthwhile for everyone to participate. The egoistic need to make business brings these organization to join a network, where they have to give in order to also receive.

Every time that a social need can be addressed as part of the orchestrated solution, we say we create shared value. Social needs are still one of the most unserved opportunities and often require an orchestration of the whole ecosystem (Porter, 2016). Fair access to finance and urban mobility are social needs that are world sustainability challenges at the same time. Therefore, the examples on SmartMobility solutions and microfinance institutions are good orchestrated references of new revenue streams associated to solving a social need, that at the same time represents a world challenge. Therefore, we can also say they are contributing to a whole system's change.

New technologies, data analytics and big data are very present in many today's innovations. In the examples on SmartMobility or Microfinances, definitely technology plays an important role to make them happen and the technology providers are key partners of those networks.

All these examples and strategies show the circular or network relation that new initiatives require to succeed in current times. Isn't it fascinating that new innovations will increasingly address a societal need while bringing a new offering to the market? Isn't it great that the creation of a new business model can bring new profit to an organization whilst raising the level of disadvantaged groups and addressing big world's sustainability challenges? Are they

Technology and information among people and institutions is key to an innovative process

aware of the huge business potential of creating shared value as a lever to make progress on solving the world system challenges and create large scale change beyond the business world?

Orchestration will bring the best out of all stakeholders, and like in an orchestra, where the individual instruments already have a beautiful sound by themselves, by bringing them together in an orchestration you get the magnificent effect of the orchestra.

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